A·I·A

Journal

OF THE AMERICAN INSTITUTE OF ARCHITECTS

December 1960



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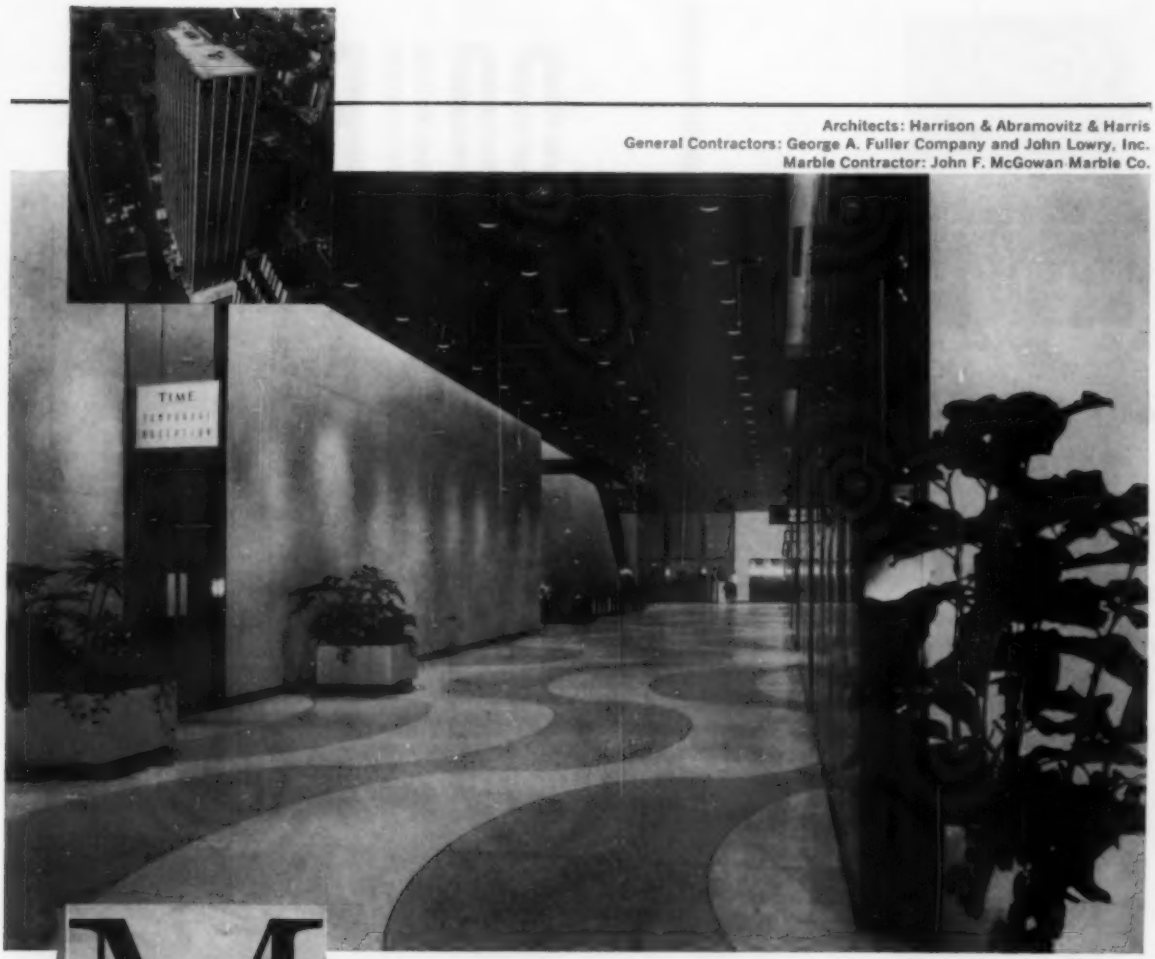
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VOLUME XXXIV, NO. 6 DECEMBER 1960

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The William Gibbes House in Charleston, a waterfront home built about 1772 at the height of Charleston's Georgian period. From a photograph by Samuel Chamberlain.

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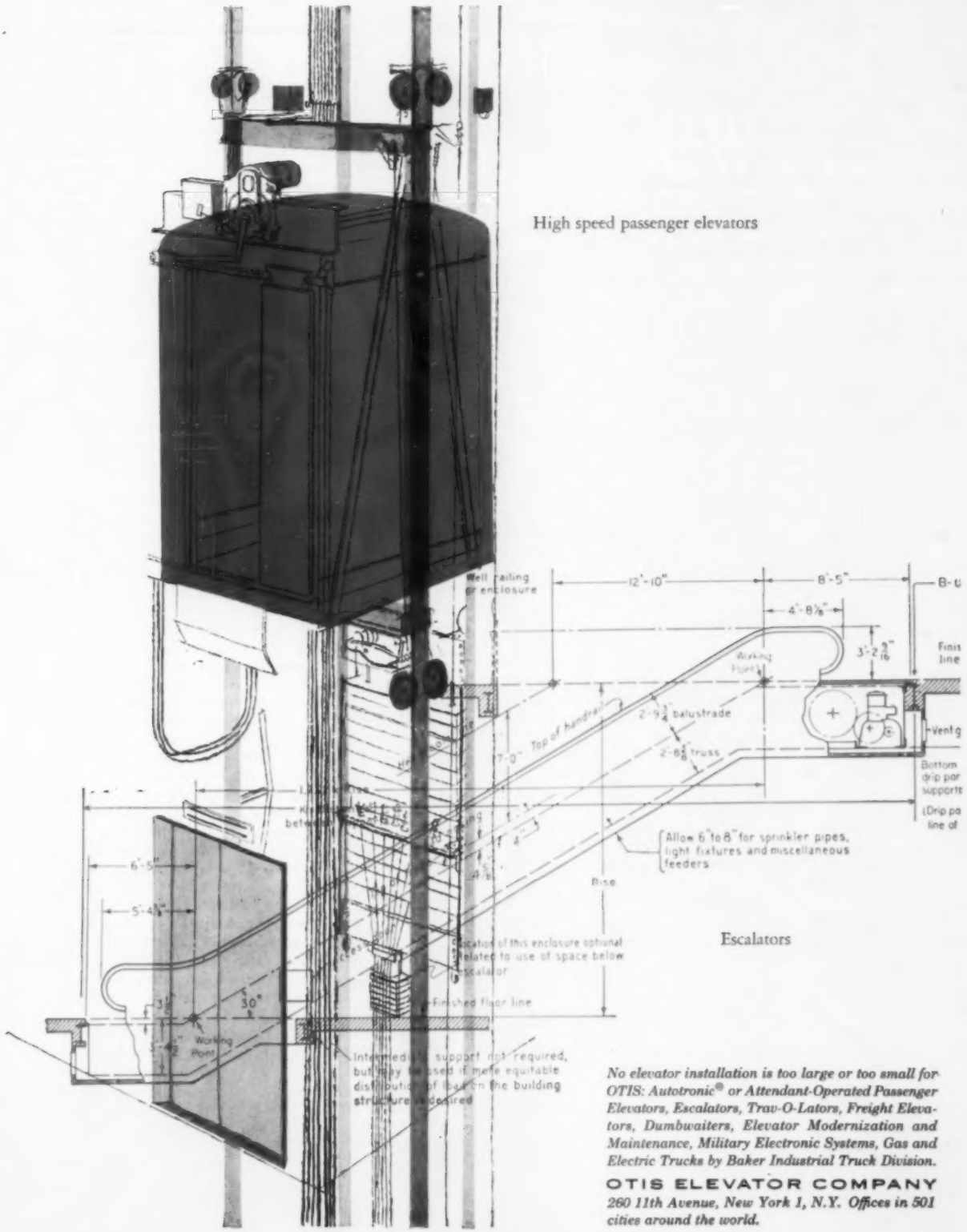
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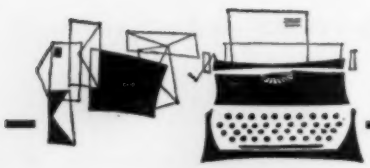
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LETTERS

Planning Praised

EDITOR, *Journal of the AIA:*

Cheers to the October issue for the two exciting (and long over-due) articles, "The Planner and His Critics"—Grady Clay and "The Master Builders"—Ian Nairn.

Recently the AIA Northwest Regional Convention met in Sun Valley; the speakers' topics covered a wide range of subjects, but the real "keynote" of the convention—the one topic which kept recurring in discussion (regardless of the original planned subject), was that of people in their surroundings and especially American people of 1960 compared to people in other places and at other times.

Mr Clay spoke of the importance of encouraging unsung adventures in planning and also listed several well-known "weed killers." One of the highlights of the recent convention was a five minute "fill-in" talk by a Portland, Oregon, architect, Lewis Crutcher (who is also a weed-killer, or as he sometimes refers to himself, a "blightmonger").

With the use of slides Mr Crutcher skipped skillfully from six-story-high Coke bottles on Portland buildings to sidewalk tables under the tree-covered streets of Paris; from stands of Portland telephone poles (with the Thurber bit about cutting down the trees to make the lumber to build the institutions to put the people in who went crazy because there were no trees) to the streets of Copenhagen and floating balloon-like lights hanging from the trees; from looking down on a marble-patterned plaza in Italy to paint-patterned parking lots in Portland; from scenic views of Hawaiian beaches to scenic views of Mt Hood—all but hidden by billboard scaffolding; from sublime details of Portland's bridges to ridiculous views of cropped fir trees, cut off to allow for better vision of a conservation billboard.

But Mr Crutcher does more than spray the weeds; he offers flower seeds for replanting. Included in his slides were pictures of town landmarks and open spaces, blighted or forgotten, followed by delightful sketches of how it all *could* be; even individual shops and stores were sketched to show a particular owner what could be done with as little as paint, a pot, and a flower. He takes his slides anywhere he is invited—to a thousand school children in Spokane or to fifty farmers in Idaho.

He visited the town of Ketchum, which is an offshoot of the Sun Valley resort. Sun Valley Village, owned and operated by the Union Pacific Railroad, is an ideal planned community; there are parking on the periphery and pleasant places to walk by lakes and parks, and pleasant places to eat beneath trees and awnings. But the town of Ketchum, one mile away, is one of the tiny "Missouri-type" towns of which Mr Nairn speaks. It exists for the tourist overflow and is a hodge-podge of everything and nothing.

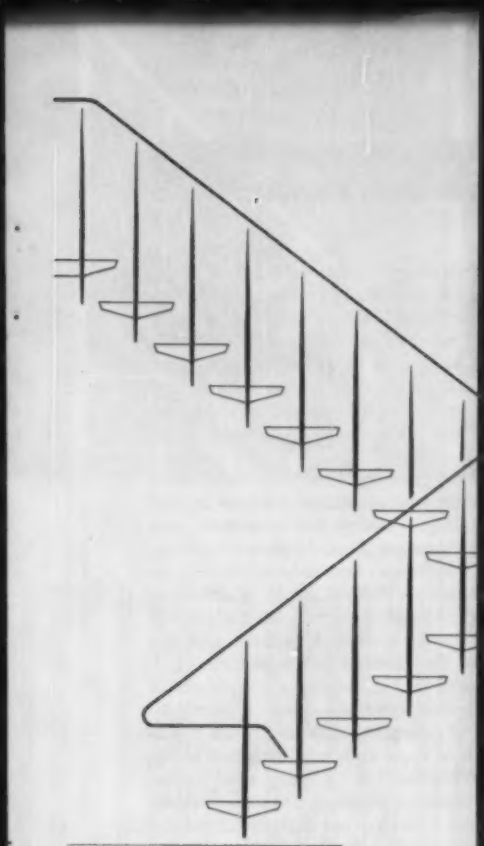
Recently the Ketchum City Council appointed a planning and zoning board to try and pull things together. They have been talking and looking and trying to learn. They have written to the American Society of Planning Officials, the US Chamber of Commerce, the Urban Land Institute, the AIA, and all the attractive communities they could think of, asking for pictures, codes, laws, information. They do not have money for planners (there are not even paved streets or sewers), but they wanted some way to tell the people of the community what planning is and why. So Mr Crutcher brought his slides and talked for two hours; he walked every street of the town charting what type of building was where; he met with the Council and presented a planning study; he slept in a basement one night and a friend's car another and incidentally attended the AIA convention!

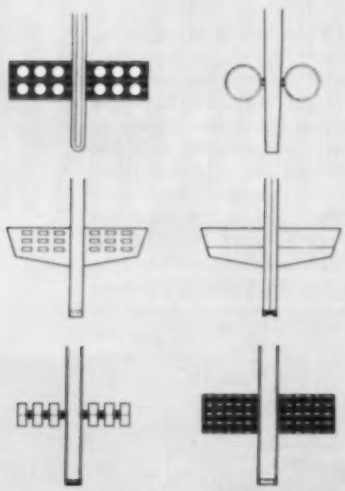
The results are never immediate. After seeing 250 slides showing billboard blight, one motel owner (with flashy signs spread over thirty miles of otherwise beautiful scenery) was overheard: "Hell no; I'm going to put more of them up." But his wife signed a county-wide petition for billboard control. There is a committee working on planting six dozen silver poplars down Main Street by spring. Local artists are submitting Crutcher-type sketches of existing buildings with new paint and plants and closed gridiron streets with sidewalk cafes—all on paper now, but they have been operating only four weeks!

Mr Crutcher is one architect who seems to be much more interested in—what is to me—the essence of architecture—the environment of people, than the organization representing the whole practice of Architecture. Why couldn't the AIA do on a national basis what Mr Crutcher is doing as an individual?

City planning by planners is wonderful! But how many planners do we have for the number of American communities who need it! How many "everyday" Americans will be aware of their surroundings through the information now available? The Lewis Crutchers of the country can contact thousands, an AIA-sponsored program could influence millions. One small example of how the AIA might be of assistance—one that might be multiplied a thousandfold—is the need for better gas stations. There is a new station planned for our town; Mr Clay might be glad to hear that we did find out what was going on before the decisions were made. Even the local owner wanted a station that was different; one that might reflect the atmosphere of a mountain ski and summer resort. But the Standard Oil Co said "No! People will

(Continued on page 8)





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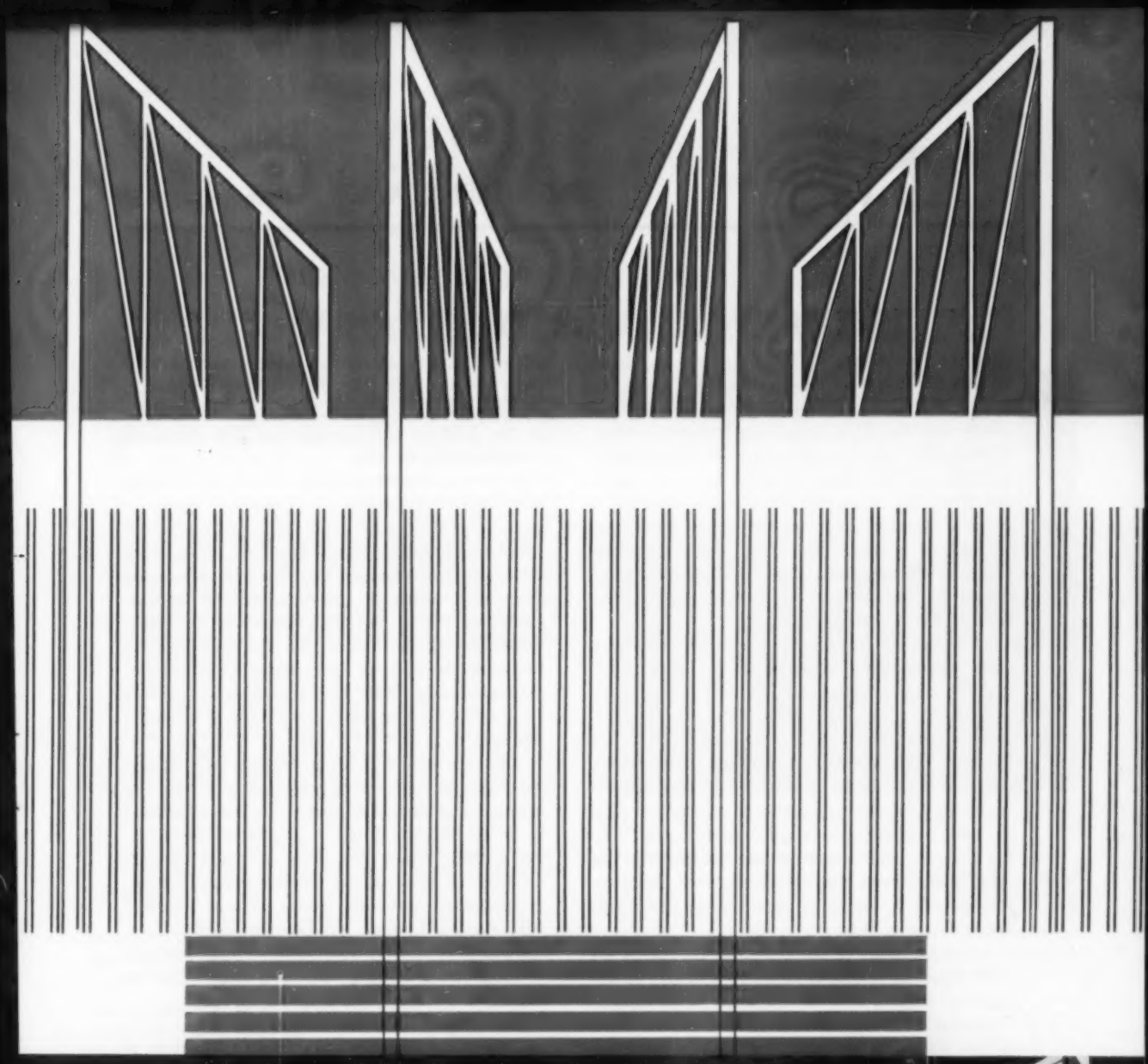
look for the same station that is in their own town and if they don't see it, they will go elsewhere." What Standard doesn't care about is that Ketchum is over-gas-stationed to the point of ridicule and "elsewhere" lessees are coming and going at an alarming rate of insolvency. One really attractive station with a few pine trees and a little atmosphere would be the high-point of the street, the pride of the residents and the talk of the tourists.

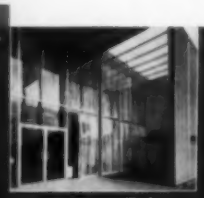
For four weeks the planning board has been writing, requesting pictures of attractive stations in key with their surroundings—asking for snapshots and offering to pay for them—to Ford Motors magazine, to National and California Roadside Councils, to Yosemite Park, Squaw Valley, Carmel, California, Scottsdale, Arizona, Aspen, Colorado, so they could say to Standard, "Look, it was done here and it's good business," but they cannot find a picture.

The planning board is also keeping a scrapbook on any item of pertinent interest—other community zoning and planning programs; articles on old buildings being retained in their delightful original architecture instead of plastered with jazzy new fronts; pictures of school children planting trees on business streets, and even the New Yorker cartoon about the couple hanging out clothes in the Garden of the Gods!

The Sierra Club of San Francisco is an organization dedicated to conservation; they do an invaluable job publishing propoganda for the preservation of unspoiled open spaces; they object to six-lane highways roaring by beautiful mountain lakes; they object to commercial logging interests masquerading as forest "maintenance" and unrestricted use of motor boats flooding and polluting wildlife preserves. They have just published a book entitled "This is the American Earth," by Ansel Adams and Nancy Newhall. As well as some unspeakably breathtaking photographs of grasses in the rain, a tern in flight, a newborn fawn, a ray of sun in a deep forest, it shows the smog of cities, eroded Oklahoma farmlands, Los Angeles housing developments, and it has some poetic and thought-provoking captions: "Hell we are building here on Earth. Headlong, heedless, we rush—to pour into air and water poisons and pollutions until dense, choking palls of smog lie over cities, and rivers run black and foul; to blast down the hills, bulldoze the trees, scrape bare the fields to build predestined slums; until city encroaches on suburb, suburb on country, industry on all, and city joins city, jamming the shores, filling the valleys, stretching across the plains; to build highways hypnotic in their monotony, looping and twisting through cities, entangling in danger, noise, fumes, communities once citadels of home; this is Man's crisis. . . . Shall we not learn from life its laws, dynamics, balances? Learn to base our needs not on death, destruction, waste, but on renewal? Learn at last to shape a civilization in harmony with the earth?"

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NEWS

Pan American Congress Coming Here

The American Institute of Architects has invited the Pan American Federation of Architects to hold its XIth Congress in Washington, DC in 1965. The Pan American Congress will be held jointly with the AIA annual convention that year.

Philip Will, Jr, FAIA, President of AIA, personally delivered the invitation to the Xth Pan American Congress of Architects meeting October 6 to 17 in Buenos Aires, Argentina. The invitation, as well as a letter of greeting from President Dwight D. Eisenhower, were enthusiastically received by the more than 900 architects from thirteen Latin American countries.

"I know the architects of the United States value greatly their membership in this Federation," the President's letter said. "It is natural they should want to serve as hosts to its next Congress."

Samuel Inman Cooper, FAIA, of Atlanta, Georgia, head of the US delegation to the Buenos Aires Congress, was elected president of the Pan American Federation of Architects, of which the AIA has been a member ever since its founding in 1920. Mr Cooper, who is also the new chairman of the AIA International Relations Committee, has been attending Pan American architectural congresses regularly since 1947.

Other members of the United States delegation were Louis G. Redstone of Detroit, Mich.; Montgomery Ferar, Southfield, Mich.; Ronald S. Senseman of Washington, DC; Savo M. Stoshitch of Los Angeles, Calif.; and Mrs. M. Van Pelt Vilas of New Haven, Conn. Wolf Von Eckardt, head of the AIA Department of Public Information, attended the Congress as observer for the Institute.

New Program At Columbia

A two-month program of celebrations in honor of the four great founders of modern architecture—Walter Gropius, Le Corbusier, Ludwig Mies van der Rohe and the late Frank Lloyd Wright—will be held at the Columbia School of Architecture in the Spring of 1961. Titled "The Four Great Makers," the program will bring each of the three men and Mrs Frank Lloyd Wright to the School for a two-week period to meet with a distinguished group of international architects, educators and writers. They will participate in a series of exhibitions, seminars, lectures, broadcasts and social affairs, including a series of dinners to be tended them by the President of Columbia University, Dr Grayson Kirk, and such professional societies as the Architectural League and The American Institute of Architects.

In announcing the program, Charles R. Colbert, new Dean of the School, says that the program "is aimed at giving these great men a podium from which to address the world they have played such a large part in shaping. They have been honored in the past, of course—but never before together. Although the contribution of each has been world-shaking and unique, the four together have furnished the bedrock upon which all contemporary architecture rests. By bringing them together for the first time in history, we hope to celebrate this fact."

The seminars will bring together the leading international scholars of each man's work. The retrospective shows, all four of which will be held at Frank Lloyd Wright's famous Solomon R. Guggenheim Museum, will be designed by such well-known figures as the architect Philip Johnson, the sculptor Constantine Nivola, Gyorgy Kepes of MIT and Paul Grotz, Art Director of the *Architectural Forum*. A series of affairs for the students of architecture at East Coast schools will also be organized by the Columbia student body.

The program is under the general chairmanship of James Marston Fitch, Professor of History at the School.

Names in the News

Gibson A. Danes, Dean of the Yale School of Art and Architecture, has been awarded an Honorary Professorship by the National University of Engineering of Lima, Peru. *Walter De Salles Harris,* Assistant Professor of City Planning at Yale, received an Honorary Doctor of Philosophy in Planning degree from the same school. . . . *Richard J. Neutra,* FAIA, was principal speaker at the dinner climaxing the Home Design Clinic of the National Association of Home Builders and The American Institute of Architects. . . . *James*

(Continued on page 12)

The advantages of
sheet floors in hospitals

The exacting maintenance requirements of hospitals pose special problems to be considered when making flooring specifications. Hospital floors in rooms and corridors are bound to be subjected to frequent, rigorous cleaning. Often, this entails harsh compounds. It is important that "dirt-traps" – cracks or crevices where germs or viruses might accumulate – are eliminated as far as possible. Because sheet floors provide a virtually seamfree, smooth surface that is easy to clean, they are generally considered by hospital planners and maintenance experts to be the most suitable for hospital use. Of course in certain specialized areas–X-ray rooms or operating rooms for example–other flooring materials may be required. However, such requirements involve technical considerations beyond the scope of this article.

Sheet floors have minimum number of dirt-catching seams

Because linoleum and sheet vinyl floors come in rolls 6′ wide and up to 100′ long, they can be installed with a minimum number of seams. If, for example, a 48′ x 60′ area were covered with 9″ x 9″ tiles, there would be more than a mile (5,760 feet) of seams. Even with 2″ stripwood flooring, there would be a minimum of 1,450 feet of floor board joints. On the other hand, six-foot sheet flooring could be installed with only 300 feet of seams in our hypothetical 48′ x 60′ area.

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Sheet floors can be coved up the wall to avoid further dirt traps

Sheet floors present another maintenance advantage for hospital use in that they can be coved–or "flashed"–up the wall in one continuous sheet. This completely eliminates baseboard crevices or the slight separation between top-set cove base and the floor. And coving sheet floors provides a smooth, flowing surface which avoids dirt traps and permits the lower wall surfaces to be cleaned in one continuous operation. (See photo.)

Sheet floors stand up well under rigorous hospital cleaning

Because they are virtually seamfree, sheet floors can take really heavy cleaning and decontamination without being damaged by excessive amounts of water. They are not harmed by the detergents, soaps, and disinfectants generally used in hospital maintenance. And when emergency cleaning is called for to pick up strong or poisonous substances, wiping up is easy because nothing gets trapped in joints, crevices, or corners.



By coving sheet floors up the wall, dirt-catching crevices are eliminated and thorough cleaning is fast and simple.

Maintenance costs reduced

In most cases, sheet floors require less time to clean thoroughly than tile or wood floors, so day-to-day maintenance costs are likely to be reduced. And damaged areas of sheet floors can be repaired because it is a relatively inexpensive job to cut out a section encompassing the damaged area, remove it, and install new material in its place.

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NEWS

E. Francis, Richmond, Virginia, has received a Federal appointment with the Design and Construction Branch of Public Buildings Services, General Services Administration. . . . *Thomas Creighton,* FAIA, Editor of *Progressive Architecture,* has been named Consulting Editor for the Reinhold Publishing Corporation Architectural Book Department. . . . *Louie L. Scribner,* Charlottesville, Virginia, was recently elected Mayor of that city. He is a partner in the firm of Stainbach and Scribner. . . . *Samuel E. Lunden,* FAIA, has received the Town Hall Award from the Town Hall of Los Angeles for service to the southern California community. . . . The Visiting Critics in the College of Architecture at Cornell University during 1960-61 have been announced. They include *Dean Ralph Cowan,* head of the School of Architecture and Town and Country Planning of the Edinburgh College of Art; *Douglas Jones,* director of the School of Architecture at the Birmingham (England) College of Arts and Crafts; *Jean Allpere,* Stockholm, Sweden; and *Santiago Agurto-Calvo,* Lima, Peru. American visiting critics include *Robert Little,* Miami, Florida; *Quincy Jones,* Los Angeles, California; *Charles Warner,* New York, NY; *Edwin Thurlow,* Raleigh, N.C.; *Peter Blake,* New York, NY; and *Paul Hayden Kirk,* Seattle, Washington. . . . *Charles Luckman* of Los Angeles has been appointed a member of the Board of Trustees of the state colleges of California, reported to be the largest group of colleges in the world. . . . Jurors named for the international competition for the Seattle, Washington, Civic Center fountain program are: *Nathaniel A. Owings,* FAIA; *Bernard Rosenthal; Garrett Eckbo;* and *H. Peter Oberlander* of the University of British Columbia. The $250,000 fountain will be built at the heart of the Seattle Civic Center, where the Century 21 Exposition is now under construction.

Convention Reminder

There seems to be a run on tickets and reservations for the 1961 Annual Convention to be held in Philadelphia April 23-28. If you haven't gotten yours yet, we remind you to write for them immediately. A postcard to the Philadelphia Chapter, AIA, 2400 Architects Building, Philadelphia 3, Pennsylvania, will bring a complete program and all necessary reservation blanks.



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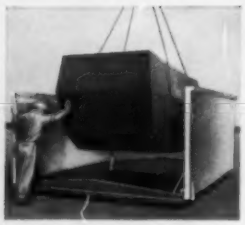
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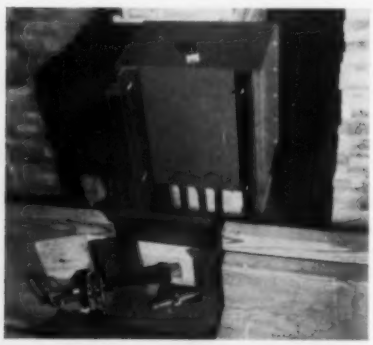
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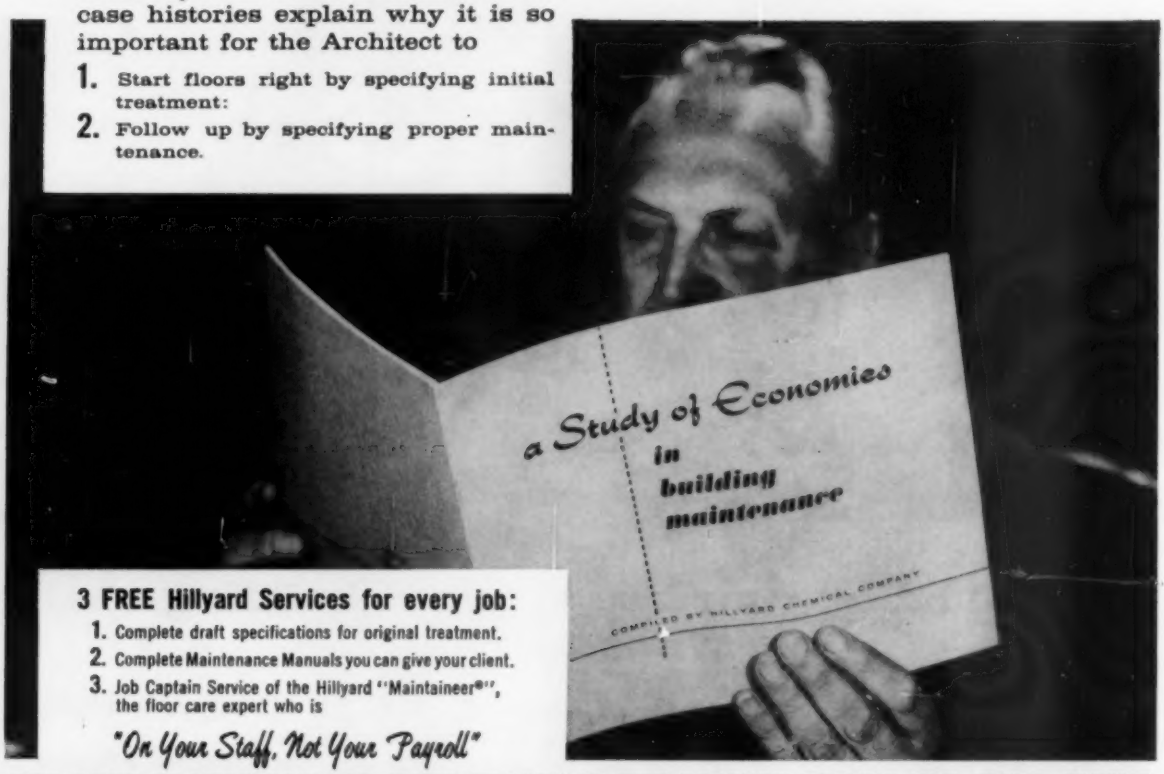
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IN SWEET'S ARCHITECTURAL FILE

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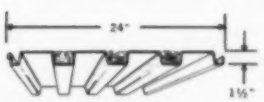
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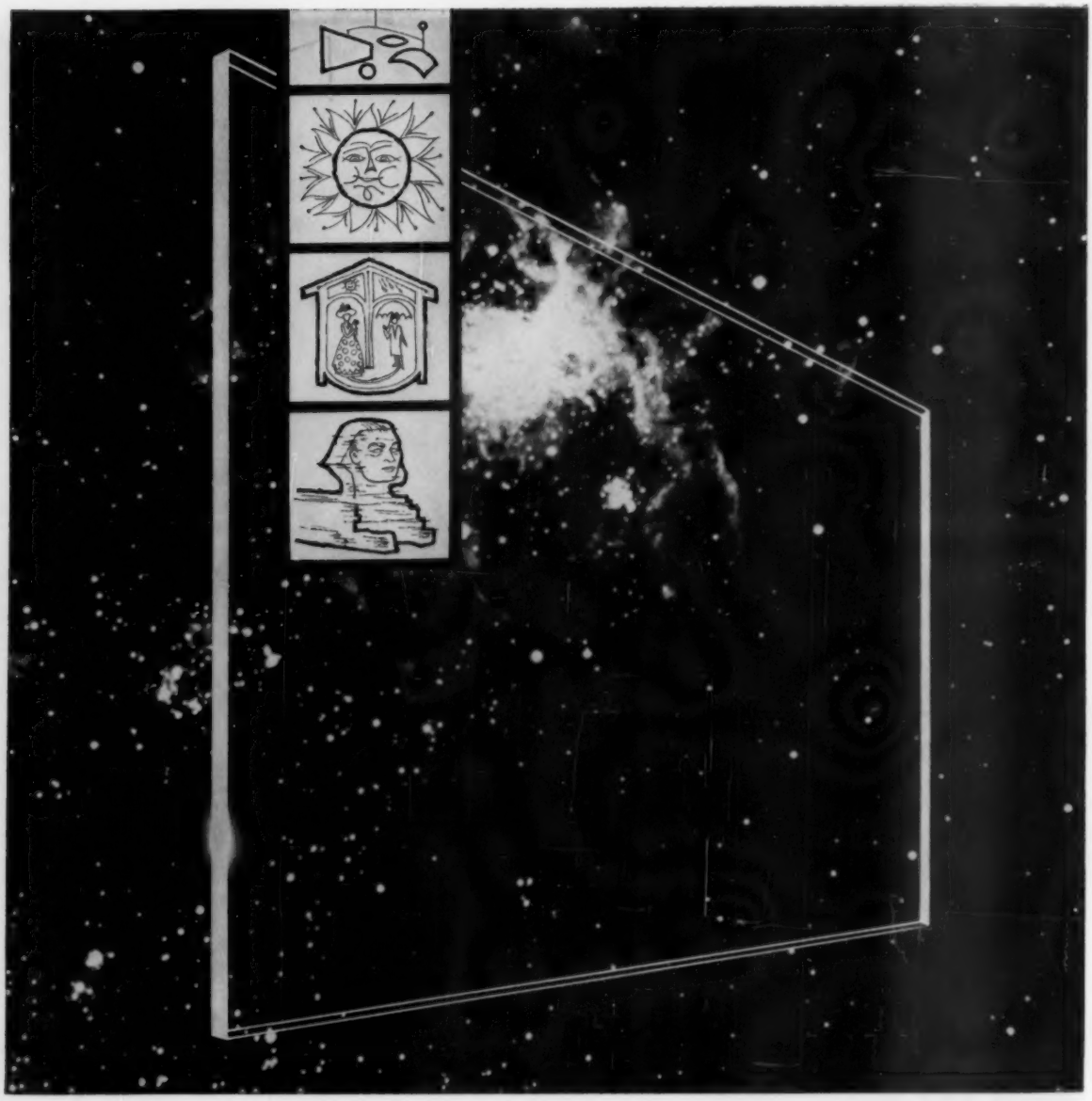
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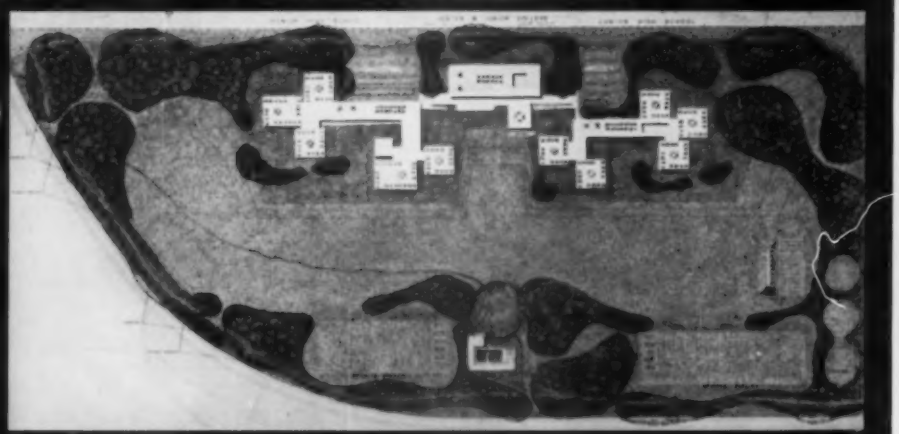


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A·I·A
Journal

Mr Millon, a graduate in architecture of Tulane, Master's at Harvard, taught history of architecture two years at MIT. This article was written while at the American Academy in Rome, working on his Harvard Ph.D. thesis

HISTORY OF ARCHITECTURE

How Useful?

by **Henry A. Millon**

► Professor Bruno Zevi, in the September 1957 issue of *L'Architettura*, wrote an editorial about the convention of South American architectural historians in Tucaman, Argentina, in which he commended the members for their conclusions about the teaching of architectural history. In a tone which is not unpatronizing, Zevi stated that the text of the convention is "a document of great interest" since it shows that "a growing historical conscience pervades the culture of even the young countries bound to the pragmatic"; that the gathered architectural historians are "facing the problem of teaching history . . . free of academic conventions"; that they are "touching upon the delicate problem of the connection between the history of art and the history of culture"; and that the gathering posed a question Zevi finds is too little discussed in Europe—the purpose of history to the modern architect.

After a laudatory opening paragraph Zevi explained, in the remaining four-fifths of the editorial, the reasons for this "growing historical interest" and defined his position and the position of Italian schools of architecture with respect to the teaching of history of architecture. Zevi stated that if we do not wish architecture to be reduced to a "style" we must rise above "the preconceived notions of style attributed to the ages of the past" and give new relief to the "true and dynamic history of the creative personality" and to the works they created. He further stated that history taught

in this way would be history "not only to be meditated upon [but history which] would be useful."

Walter Gropius and the Bauhaus are criticized when Zevi said ". . . its [the Bauhaus'] weakest point, the cultural limitation, the most evident *Lacuna* of this great school" was the lack of architectural history in its curriculum. The last half of the editorial was devoted to some suggestions as to the content of architectural history courses and how they should fit into the curriculum. Zevi claimed that "all the courses with their various emphases, will be courses of architectonic history, especially those concerning the materials of construction, which in the most advanced schools, are already oriented in that direction. From a coherent historical-critical direction the entire teaching of architecture, now split into half-a-score of closed compartments, will draw the motive of its dynamic unity. Many professors, with the most varied artistic and technical inclinations teaching only one subject: architecture in its history, acting on the problems of man in forging its modernity."

I have no wish to contest Zevi's admission concerning the lack of theoretical discussion in European schools of architecture, nor do I wish to discuss the obvious fallacy of considering all American architectural schools as bound to the pragmatic, but I should like to discuss his views concerning the role of the history of architecture in the architectural curriculum.

Zevi's description of a "modern" architectural curriculum is one of a unity and an organization far beyond any that exists in our schools at present. There would be a direction, an approach, that all faculty members would be aware of and would be expected to adhere to, while at the same time be allowed to follow their own artistic and technical inclinations. This would be a remarkable situation indeed, but might it not create a rigidity and a pragmatism that would make the Bauhaus group appear to be a teacup-balancing dilettantes? The Bauhaus was remarkable because it was formed around an idea as propounded by Walter Gropius —the necessity of ending the schism between the technician and the craftsman. The influence of the Bauhaus was widespread because of the basic soundness of the proposition and the clarity with which it was expressed. Zevi is speaking of attitudes, of approaches, and of integrations which are useless or non-existent without the idea. The idea may create a direction through the development of a method. If history is to become the backbone of the architectural curriculum, Zevi will have to define its purpose, role, and method a great deal more clearly than he has so far.

Professor Zevi's emphasis on the necessity of experience and individual analysis of works of architecture is understandable and commendable, but much less sound is his admonition to teach "true and dynamic" history that will be "useful." While most professors would rather teach "true" history than false, be it dynamic or static, it is questionable whether or not there is any true history, and if there is, whether all professors would be able to teach it. History is the selection, organization, and presentation of facts which seem to be most important to the writer. And the process of selection of facts is, in itself, an act of interpretation, and will vary from generation to generation. So there are many different "true" histories and it will be difficult to decide which one the schools should espouse. As to the term "dynamic history," Zevi should be aware of his great fellow Italian Benedetto Croce who said that historians both write and create history. The implication is clear—historians, in their process of selection, organization, and presentation, interpret the past for the present and in so doing mould the present. Is this not dynamic? How could it be otherwise?

The teaching of architectural history is dependent upon the selection of facts. Which buildings are to be discussed? How will they be examined? Which aspect of theory will be developed in detail? All of the selected facts are dependent upon the personality, aims, and direction of the instructor. It is he who, with each lecture, creates a little world that may be visited by those to whom he lectures; a world that may be fascinating or dull, fertile or barren, edifying or corrupting, but always a world dependent on the talent of the instructor. He does not fit into a mould (as some of the most advanced schools are finding out) and cannot rigidly trace a pattern, but must have freedom within the limitations of his subject. He knows, better than most others, his strengths and weaknesses, his interests and his beliefs.

Why does a man teach architectural history and how "useful" can it be? What does the teacher hope to pass on to the student? Is history a new tool for fashioning better architects? Is history the distribution of capsules of information that will either act as a purgative to rid the student of preconceived notions, or as a vitamin to invest his designs with new vigor? Is there a direct relation between historical knowledge and architectural excellence?

Or, may history be simply one of those things which aids in the maturation process of an individual, be he architect or businessman? Is it perhaps a field of study in which students learn some-

thing about themselves and others as human beings and as creators, in their greatness and their littleness? Does it perhaps instill a respect for valid achievement, a contempt for vacuous pretense, and develop the ability to discriminate between them? I believe it may.

History is the study of man—architectural history is the study of architects and the works they produced. A student of architectural history might become a man of developed sensibilities, deep compassion, and profound understanding. It is for this reason and to this end that architectural history should be taught.

The good architectural historian will never "toe the line" any more than will the good architectural designer. The historian must be selected for his intrinsic qualities and then given free reign to teach the course he sees fit. He may teach something that will prove to be "useful" in Zevi's terms, and he may not. The integration of matters historical with the other material in the student's mind cannot be accomplished by the faculty or by any single professor. If it occurs it is the product of the student's awareness, imagination, and intellectual capacity. It is the duty of the professor to teach architectural history to the best of his ability; to keep himself aware of progress in his field; to make an effort to expand the sum total of our architectural knowledge.

The real danger to the student is from the historian who strips down or soups up his presentation to get a little more mileage out of the Art Nouveau or the Space Frame. Denatured or overvitalized presentations will give the alert student architectural indigestion, while a spirited, sincere exposition by a competent scholar may offer sustaining nourishment. A sound presentation of history may also expose the student to some of those too-often neglected solitary pleasures—contemplation, rumination and meditation while developing in him a sophisticated confidence.

It has been said that the proper study of man is man. Such study can make better men. Do better men make better architects? ◄

The City

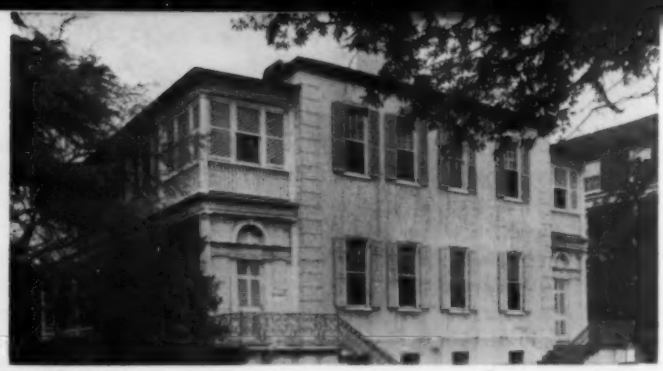


Aloysius Schuszler, AIA

Forty Years of Preservation

by **Albert Simons, FAIA**

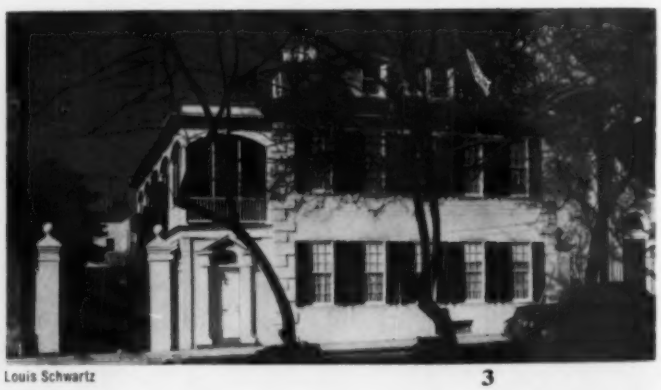
Reprinted from
Preservation Progress, *May 1960,*
published by the Preservation Society of Charleston, Inc



Louis Schwartz **1**



Louis Schwartz **2**



Louis Schwartz **3**

Dorothy Green



4

The beautiful old houses of Charleston are so well known that we are apt to take them for granted. Yet most of them would not be here today unless "somebody cared." Mr Albert Simons here tells the story of organized preservation effort in his charming southern city

► It might be claimed with some show of truth that while the American Revolution achieved the political independence of our country, it was only after World War I that we became conscious of our American cultural heritage. This statement like all other over-simplifications needs to be qualified, but is useful in defining the commencement of a new era after which an appreciable change of values occurred in our point of view as a nation.

The Society for the Preservation of Old Dwellings, as it was then called, was founded in 1920. It was then largely a woman's organization and its leader was a woman real estate agent whose spirit was stirred by the great number of handsome old houses falling into neglect and decay as slum tenements. With little capital and no technical background she acquired, repaired, and reclaimed for decent habitation one house after another until in the course of her active years she had achieved single-handed an impressive renewal of a considerable area in the older part of this city. Her example was followed by courageous home-seekers who were bold enough to buy a handsome old house in a rundown area, to discover later that their foresight had been right and that in the course of years all the neighboring houses were also to be renovated. The time was propitious for adventure, for on the return of our youth from the armed services after World War I a fresh wind of optimism swept through the old streets of Charleston dispelling the clouds of economic and creative depression that had hung low over our city for decades. There were then stirrings of the spirit in many spheres of endeavor.

The outside world in increasing numbers and with growing surprise and delight had rediscovered Charleston. Every spring among the casual tourists there came more writers, architects and artists to wander through the streets and experience the amazing beauty of great gardens.


Louis Schwartz

5


Emmett Robinson

6

1 *Built 1712—restored 1940*

2 *Bennetts Rice Mill, 1844. Courtesy HABS*

3 *Built 1740—restored 1930*

4 *Marina Hospital by Robert Mills. Built 1833—restored 1939*

5 *Hayword-Washington House. Built 1770—restored 1927*

6 *Drawing Room, Dock Street Theatre. Interior from Judge King's House before 1806*



Louis Schwartz

Nathaniel Russell House. Built 1804. Acquired by the Historic Charleston Foundation 1955

Many of these visitors began to return each winter with the regularity of the flight of the Danish storks to the Nile valley. With these winter colonists came a cross fertilization of ideas which was manifold in its results. The Poetry Society of South Carolina was founded and soon there was a considerable group of native and imported writers in our midst developing variations on the local theme. A surprising number of this literary fraternity in time achieved national recognition.

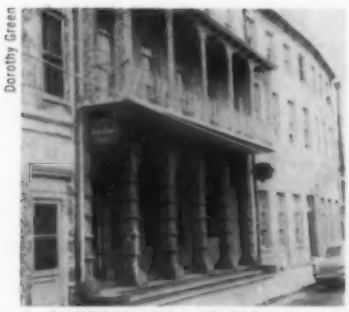
The Carolina Art Association, having remained in innocuous desuetude for at least a generation, acquired a dynamic and ambitious director and activities began to multiply. His most lasting contribution was the publication of a series of books by qualified persons on the earlier architecture and architects of this area.

The depression seemed to stimulate rather than to blight this flowering. The Dock Street Theatre, reminiscent of the original eighteenth century playhouse, was conceived and built as a "relief project." It was to become for many years an "apple of discord" between two rival groups of players, each seeking its possession and stimulating each other to more intensive dramatic activity.

The South Carolina Chapter of The American Institute of Architects almost ceased to exist in the early years of the depression, but thanks to the leadership and enthusiasm supplied from Charleston this body survived a serious crisis to grow in stature and to become of even increasing influence throughout the state.

In the 'thirties Charleston was blessed with a mayor of enlightened and progressive outlook who engaged the services of professional planners to prepare a zoning ordinance. This ordinance contained much that resembled other ordinances, but established something that had been long recognized in Europe but had not been attempted before in America. It created an area of the city known as "Old and Historic Charleston" to be protected by the surveillance of the Board of Architectural Review. Although the esthetic guidance of this Board—like the moral guidance offered from the pulpit—has not always been accepted, it has over the years exercised a definite influence for the general good and has been justified by the adoption of similar ordinances in other American towns and cities of venerable origins.

With the ever increasing number of artists working in various media such as oils, water color, pencil, etching and modeling, all presenting the local scene transmuted by a variety of temperaments and talents, the average citizen has been made aware of the beauty and significance of form, color, texture, proportion and scale, which would not have concerned him otherwise. Not a little of the widespread responsiveness of our community to



Built 1736—restored 1936



Pre-Revolutionary



Restored 1941



Built 1770—restored 1931



Gadsden Home prior to restoration 1959



Restored 1936

preservation efforts can be traced to the influence of the graphic arts on our visual preferences.

The traditional culture of Charleston was for generations strongly influenced by a plantation background which survives to this day in a widespread interest in botany and in zoology and is reflected in the popularity of garden clubs and of the Charleston Museum. With the surrounding areas becoming more highly urbanized and subdivisions replacing fields and woods, the town garden is becoming more carefully planned, often by a landscape architect, and is more intensively utilized as an outdoor living room. The Museum, once devoted largely to natural history, has under successive directors broadened its scope to preserve early costumes, silver, china, furniture, iron works, interiors within its walls, as well as two carefully restored houses.

All of these related organizations and their achievements have been cited briefly to indicate that since its founding the Preservation Society of Charleston has not been striving alone and that the sentiment of the community has been moulded also by other favorable influences.

Not the least of these has been the Historic Charleston Foundation. This body consists of a relatively small board and a few paid and highly efficient staff workers. Their efforts have been directed towards acquiring the financial means to purchase and utilize properties which might otherwise be dismembered or destroyed. After saving and restoring one superlative house by a whirlwind fund-raising campaign, they are now embarked on a more ambitious program of salvaging an architecturally significant but blighted neighborhood.

The Preservation Society on the other hand has a membership of over a thousand. All workers are voluntary. Through its well edited publication *Preservation Progress* it exerts a widely felt educational influence in the community. It has on many occasions collaborated generously with sister organizations in saving notable buildings threatened with destruction. Its meetings are open forums for discussion and it continues to serve as a power house of energy and enthusiasm.

The English author and critic of taste, Osbert Lancaster, has written a devastating satire on the cult of preservation in its most virulent form as practiced in a hypothetical English town under the title of "There'll Always be a Drayneflete" in which the activities of Miss Dracula Parsley-Fidget, her family and friends are deftly scarified. This book should be required reading for all of us interested in preservation to enable us to retain not only a sense of humor but of proportion and of values of the relative importance of those things most deserving of survival in a rapidly changing world. ◄

The Automobile and the City

by **L. Hilberseimer,** *Professor of City and Regional Planning, Illinois Institute of Technology*

An editorial in the AIA Journal *last February, "To the Gentlemen of Detroit," sparked Professor Hilberseimer to write this article, showing one way to plan our cities to avert the ultimate stagnation that seems to face cities as a result of traffic congestion*

► Do automobiles render our cities obsolete? Or does the trouble lie with man, who wrongly uses this great invention? He has certainly never tried to find an adequate solution for the problems automobiles present to our cities. As the number of cars steadily increases he can build new highways but he can never provide adequate parking space. The automobile has also made it possible to spread the city endlessly over the countryside. Consequently it takes hours to go to and from work and this amounts to years in the course of a lifetime. What can be done about this? Are there no possible solutions to the problem? I think there is one—a quite simple one too—to make traffic, as far as possible, unnecessary.

Years ago I made plans for certain large housing projects, with Mies van der Rohe as architect and the late Herbert Greenwald as promoter. One for Detroit, which is now being built, and a much larger one for Chicago. In these projects I changed the street systems. I eliminated some streets and closed others. I made closed-end streets in order to prevent through-traffic. I also placed small parks between the residential units, and located schools and playgrounds in these. Children could go to school without crossing a traffic street. Thus I simplified the traffic system, prevented through traffic in the residential area, made communication easier for drivers and pedestrians alike by reducing the crossing points considerably. I provided better living conditions in the residential area and reduced the local traffic, but I did not reduce the amount of traffic to the center of the city and crosstown. How could this be done? Only by relating working and residential areas within walking distance of each other. This possibility made me think about some method of changing our cities gradually. This would not only reduce the local traffic, but also, very considerably, the traffic to the center of the city.

In recent years, with a group of planning students at the Illinois Institute of Technology, I have made studies of different cities in order to show how these cities could be changed structurally. The changes could be made gradually, step by step. Each step would be an accomplishment in itself. As much as possible would be preserved of the existing city—its streets, buildings and utilities. The resulting stabilization would prevent further deterioration and would make real conservation possible. Urban renewal and slum rebuilding would then be more than the mere replacement of obsolete buildings by new ones. Such a structural change of the city would also solve the city's traffic problem and this would be its greatest advantage.

In all the large cities, new traffic arteries are planned or have already been built. These arteries create a framework which, if coordinated with secondary routes, could serve to divide the city into neighborhoods. Industrial and commercial buildings, if not already existing, could be located along these arteries, forming areas that could be so planned and dimensioned that the inhabitants could find work within walking distance of their homes. Thus congestion of traffic in these neighborhood areas could be practically eliminated, further relieving the traffic to the city center.

The automobile has resulted in an enormous suburbanization. The consequent problems of traffic to and from the city and traffic and parking problems within the city, appear to be insoluble. It has been suggested that automobiles be entirely banned from the city's center and the traffic prob-



Existing Conditions. *The industrial areas (indicated in dark gray) are located along the river and farther north of it. Between these is the commercial area (indicated in light gray).*

lem solved by means of mass transportation, preferably by monorail. But would mass transportation, with the inevitable rush hours, be a desirable solution? Is there no other way? Would it not be possible to reduce traffic to a minimum in both city and suburb, and to abolish local traffic altogether? We believe that this could be accomplished.

In the suburbs, if industrial and commercial areas were added to residential areas, the people could both live and work there. Traffic to and from the city would be reduced. If the working areas were placed within walking distance of residential areas, local traffic could be virtually abolished. Since most of the newer suburbs are poor, many being unable to maintain their schools, both industry and commerce would help to defray local expenses and the suburbs could be autonomous communities, providing for all community needs.

In the beginning such changes, requiring the forming of new habits, would probably be resisted. We believe, however, that most people would eventually discover the great advantage to themselves in such a plan. They would save time, money and energy in escaping the strain of present traffic hazards, to which they are now daily subjected. The unity of the city would be maintained and its advantages would still be available to all.

Problems of formidable dimensions require heroic measures for their solution.

It would be a wonderful thing if some magician were to perform a miracle and, with one wave of his wand, transform things as they are into things as they ought to be. But there are no magicians. We, ourselves, must perform the miracle. Do we have the determination which is the magic agency alone capable of bringing the idea to fulfillment, of making the miracle a living reality? ◄



Intermediate Stage. *The stage of transition. To the existing local highways new traffic arteries are added. This highway network will eventually form the boundaries of the future communities, into which the city will be subdivided. These traffic arteries will attract commercial and industrial establishments and the areas along the arteries will be zoned accordingly. Within the residential area some streets will be removed, others closed, in order to prevent through traffic.*



Possible End Stage. *The possible end stage shows the established communities to which new ones have been added to replace those parts which have been taken out of the existing city. The inhabitants of these communities can find work in the working areas along the local highways which are in walking distance from their homes. The working areas (indicated in dark gray) are different in width according to requirements. Some industries need more, others less space. In the residential areas all streets are closed-end streets. Each building can be reached by car and at the same time through traffic can be avoided. On the island in the lake is the civic center and the central commercial area is located there also (it is indicated in light gray). The buildings of this area are placed on a platform, under which there are two or three floors devoted to parking. The railroad remains in its present location. The through highway is located east of the city, by-passes it and is connected with it.*

SOME CONTEMPORARY TECHNIQUES OF

Arch Construction

IN SPAIN

by **John F. Fitchen, III, AIA**

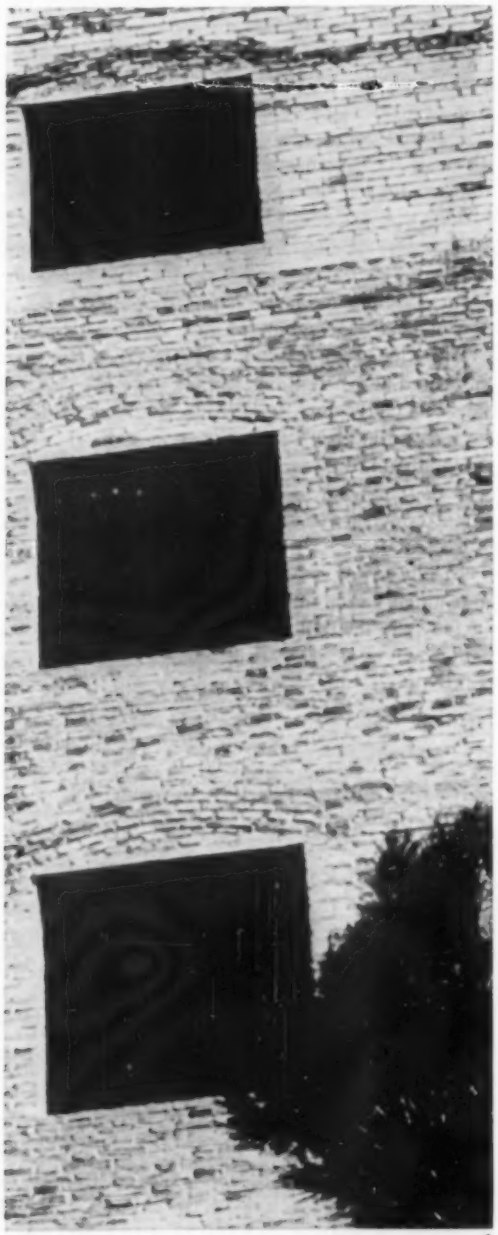
► One of the delights of foreign travel that is of special interest to the professional architect is to come upon buildings under construction, where the unfinished state of the work reveals practices—often of an ages-long tradition—that are different from those he is familiar with. To an American, such delight is sometimes tempered by a wistful envy as he notes economies in material, equipment and operation. For throughout Europe there is a long-standing tradition of economy of means, both with respect to the closely-calculated minimum amount of material used in the structure of a building and in the techniques and the plant required for its execution. The following notes give a few instances of practices that are followed in Spain today.

A common technique used by the Spanish masons in brick construction is the humped undulation they give to the courses above a door or window opening (Fig. 1). Instead of the segmental rowlock arrangement that is well-night universal in nineteenth century American buildings, giving the head of a window a curving shape, the Spanish practice keeps the window head horizontal but prevents it from deflecting by the low-wave contouring of the brick courses above it. All the superincumbent weight of walling is diverted to either side of the window opening by what is, in effect, a relieving arch of numerous courses. Here the continuity of the brick coursing makes it easier and quicker to build; and, because of the homogeneity of the coursing (all the bricks being laid in normal flatwise fashion), there are no abrupt changes of direction in the joints, so that cracks due to uneven loadings are much less liable to occur.

Professor Fitchen is Chairman, Department of Fine Arts, Colgate University and is the author of "The Construction of Gothic Cathedrals," published this fall by the Clarendon Press of Oxford University.

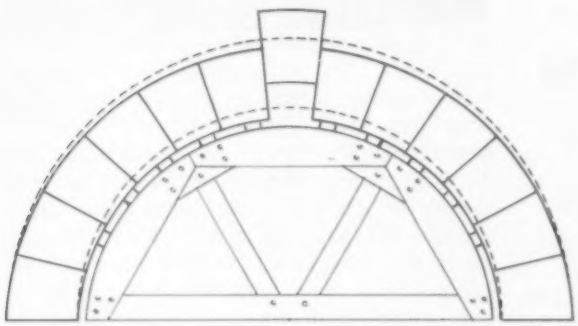
Publication of the book was made possible by a subvention granted by the AIA Board of Directors from the Henry Adams Fund

In constructing stone arches of modest size, the Spanish masons do not bother to use decentering wedges to free the centering frames from the finished arch. Instead, the contour of the centering's curve is made slightly smaller than the semicircular soffit of the intended arch. (This is most easily accomplished in practice by setting the semicircular centering frame an inch or so below the springline of the arch.) The result of such an arrangement is that, when the voussoirs have been built up from each spring toward the crown, there is an insufficient gap remaining at the top for the final voussoir, the keystone. None the less, the keystone is placed in this inadequately wide slot, where it sticks up out of alignment with the curving ring of the other voussoirs (Fig. 2). The next step is to drive it down into position with a heavy maul. Because the keystone is wedge-shaped, the two arcs of voussoirs at either side of it are sprung apart by this action, which frees the entire arch ring from the centering that had until then been supporting it. Thereupon the battens or cleats of the centering frame are racked and wrenched free, one by one; and when they have been pulled out from the side, the curving frame itself is able to be eased out sideways.



1

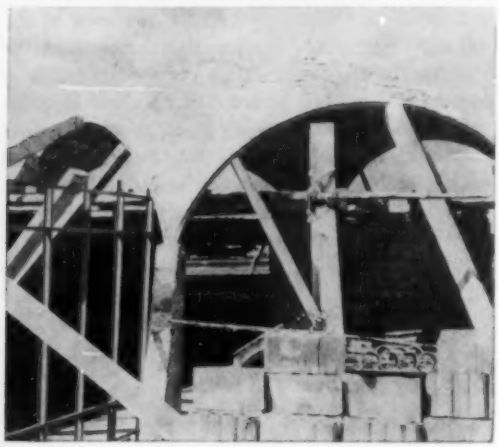
Spanish masons have no difficulty constructing thin hemispherical domes of brick without formwork of any kind. In the example pictured here (Figs. 3 and 4), curving steel angles in the shape of semicircles define a square, in plan, whose diagonal (the diameter of the dome) measures about twenty feet. The entire dome is of bricks set flatwise. They are some 5 x 10 x 1½ inches thick, although less than complete bricks are used here and there, as will appear. Above the level of the spherical spandrels—the pendentives between the boundary arches—the dome proper is built in a continuous spiraling course. This is done in order that, as each brick is set in place, two of its sides may adhere to what has already been built. The mason's helper holds each newly set brick in place only until the mason is ready with another brick, buttered with mortar on two of its edges. The mason sets the new brick in place, quickly testing its alignment by a string that is attached to a fixed point at the geometrical center of the dome; thus the even contour of the spherical surface is maintained throughout.



2



3



4

There are intermittently-spaced wires, about $\frac{1}{16}$ inch in diameter, converging on the crown. As these are embedded in great-circle mortar joints, the bricks have to be halved or quartered at these points in the coursing, in order to accommodate themselves to the continuous vertical joints that divide the dome into gores. The purpose of the wires is not clear. They would seem to be much too slight, and too widely spaced to be effective reinforcement; perhaps they are analogous to the "temperature steel" of reinforced concrete.

For the mason and his helper, a ring of overlapping planks on trestles is all that is needed by way of workmen's scaffolding. Such a scaffolding is required only within the domed space, there is no need for external scaffolding. The only tricky thing about the setting of the workers' plank platform is that its position must not interfere with the straightness of the string when it is drawn tight from time to time to check on the true curvature of the dome's inner surface. This requirement is automatically taken care of most of the time, however, by locating the planks at a distance from the work and at a height where they put the mason in the most convenient position for him to operate. If he were to lay brick at less than knee height from the platform, the planks would certainly get in the way of the string; but this is neither a customary nor a convenient level at which to carry on his work.

In any event, the string is certainly a cheaper and much easier means for checking the contour of the spherical vault than the trammel device (a radius-length pole fixed by means of a universal joint at the center of the sphere, so that its free end can be rotated in a full circle at any level).

In the example here illustrated, the whole 1½-inch-thick masonry canopy rests on slender piers at four isolated points. The thrust of the dome against the steel hoops is temporarily met by raking shores of wood. But the structure is so light for its span, that it is quite possible there will be no need for permanent struts or other means of bracing the steel arches laterally after the mortar has set. An embedded steel wire ringing the structure at the level of the crowns of the boundary arches would sufficiently take care of any bursting action.

What is most remarkable about the construction, however, is its erection without any formwork whatsoever. In this respect the canopy-like pavilion, though meeting the needs of today and conforming to the lightness and openness desired in contemporary design, utilizes the age-old skill and economy of Spanish building craftsmanship. ◄

design / THREE APPROACHES

How is a successful building design created? How does "group design" work? "How we did it" is told by three designers employed in architectural firms. Their remarks were originally presented at the 1958 CCAIA Convention in Monterey, New Mexico. An abbreviated report of their talks appeared in the April, 1959 issue of the Northern California Bulletin

John Carl Warnecke & Associates
San Francisco, California

REPORT BY NEILL SMITH

► In spite of all our efforts to deny the fact, architectural design today is the product of the collaboration of many minds. With each new decade it becomes increasingly difficult for one man to know at once the full range of materials, the techniques of construction and the requirements of all the special building types. Architects, engineers and designers of many skills find themselves contributing in a group effort. The dynamics of this group become increasingly important in determining the quality of design. There are many roads to failure: In one case, collaboration may degenerate into the unimaginative execution of doctrine, and in another case, it can become merely the summing up of unintegrated ideas.

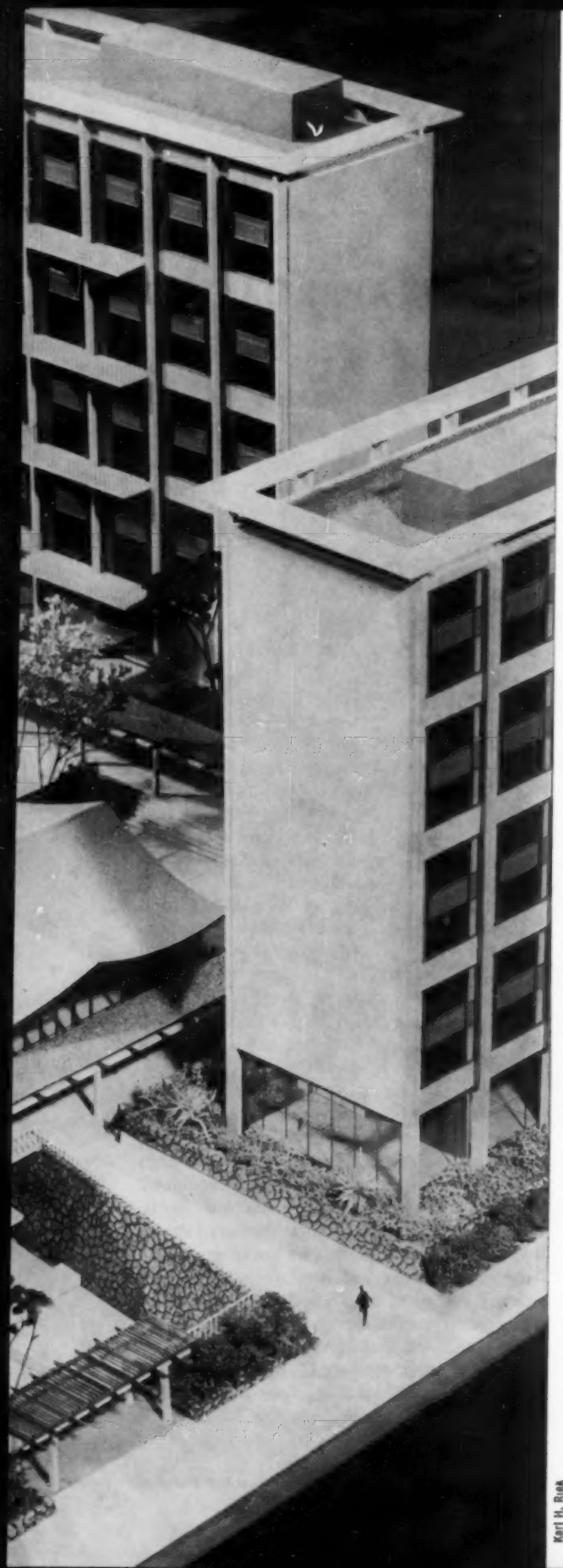
To achieve outstanding architecture under these circumstances, we must invent design processes that allow for both creativity and discipline in a group.

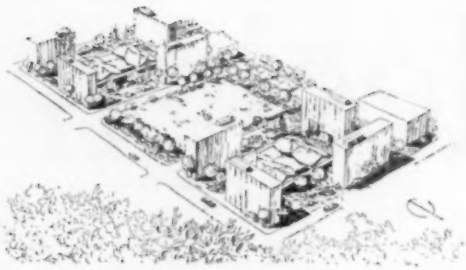
It is the design process that I would like to discuss, using as an example the University of California Residence Halls Design Competition, which was held in the summer of 1956. With this competition, the University was about to embark on a ten-year building program which would eventually house 5,000 students. The University had appointed a jury of three architects and two laymen. The architects were Pietro Belluschi, John Ekin Dinwiddie and Paul Thiry. These architects were admirably suited by their individual bents to interpret the program. Laymen representing the Regents were Mrs Dorothy B. Chandler and Farnham P. Griffiths, both of whom are known for their interest in architecture.

At the time, our office was carrying a full work load, but within a few days Mr Warnecke had organized an approach which employed every rational means to achieve an outstanding solution. A design jury was established within our own office consisting of John Carl Warnecke, Carl I. Warnecke, three staff members—one of whom was a planner, two were senior designers, and Larry Halprin, landscape architect.

In addition to a design team of four, the program was given to four other designers in the office for study, with the idea that they would contribute when the time was ripe.

The program, ten pages of facts and requirements, was no small matter to digest. In summary it read as follows: Eight hundred students to be housed in four self-contained units. These units to be interconnected to form a well articulated building, or building group. Each unit to be planned so that groups of approximately forty to fifty students will form smaller social groups. A living room, library and date room are part of each self-contained unit. The four self-contained units of two hundred students each were to be served by a single recreation room, a single group of administration offices, a single kitchen and service facility. In addition, four dining rooms





Project: The design of Residence Halls, commissioned by the University of California. Eight hundred students were to be housed in four self-contained units, these units to be interconnected to form a well-articulated building or building group. The four units of two hundred students each were to be served by a single recreation room, a single group of administration offices, a single kitchen and service facility. In part, the program stated ". . . It is desired to build a Residence Hall which will enrich student life on campus. The Berkeley climate and the tradition of Berkeley residential architecture provide a background which has significance for this Building."



Karl H. Riek

were required in pairs so that they may be used separately or together.

The total building complex was not to exceed 200,000 square feet in area, including all interior enclosed space and covered corridors, overhangs, etc. In addition to the physical requirements, which were specific to the last square foot in the program, there were the intangible requirements. The program stated, "It is desired to build a Residence Hall which will enrich student life on campus. The Berkeley climate and the tradition of Berkeley residential architecture provide a background which has significance for this building."

In these two vague and general statements lay the key to the character of the buildings, and as it turned out, the key to the competition.

The first steps were research and analysis of the problem. The Design Team and the Design Jury visited the site and visited the recently completed dormitory group at the University of California at Davis to see the identical program in its completed form. Photographs were taken of the site from all angles to obtain an accurate record of the context of the building, including the trees that are so much a part of Berkeley.

The area surrounding the site is, at present, a residential neighborhood with quiet tree-lined streets and with some fine old residences set well back in their gardens. Just two blocks away is Bernard Maybeck's Christian Science Church. We felt the solution should maintain a continuity of character and of scale with the surrounding area. At the same time it was realized that this would only be possible in the living and dining elements of the project, since the dormitory quarters would of necessity be multi-story buildings.

A thorough study of the space program was made, and when the spaces were tallied it was apparent that there was very little extra space in the 200,000 square foot total and that the site—450 feet long by 250 feet wide—was extremely limited and demanded a far more intensive use of land than any of us had anticipated. Eight hundred students on these 2.7 acres meant a population density fifty per cent greater than that of the average density of the residential areas of Manhattan Island. This did not make our problem any easier.

This kind of thorough research had two effects. It established the facts of the case which are the inherent discipline of any problem, but further, the full team of designers and the office Jury came to an understanding of the problems involved at the same time, in the same light of day, with the same trees and the same sky providing a set of common reference points.

For two weeks the Design Team worked together. It was laborious work with many knotty planning problems to be solved. Some schemes were immediately rejected, such as a large single slab building running from one end of the site to the other. Its overpowering size was inappropriate to the neighborhood. Another scheme abandoned early and with some sorrow was one that employed the separate entry system used at Cambridge and Princeton. There just wasn't enough room on the site for three-story buildings.

It was then decided that each of the eight designers who originally received the program would proceed to investigate a workable parti on his own—in effect it was a competition within the office. This was to be the period of solitary concentration; without it there can be no new synthesis in design. These schemes were presented to our office Jury in an all day session. There were ten different schemes and sub-schemes drawn for review.

Scheme A was the first and most obvious of all the schemes. Four, four-story buildings paralleled the north and south property lines; the dining hall and kitchens occupied the center of the site with detached living rooms defining the small intimate courts opposite their respective dining rooms.

It was rejected for being too rigid; the site too crowded. The residence units seemed to wall off the site from the surrounding neighborhood and the winter sun would have seldom touched the interior courts.

The second scheme retained the central dining hall feature of the first, but the dormitory units

area opened up to the south giving the court both sun light and a view to the open recreation block to the south.

The third scheme separated the functions of nightly and daily functions entirely. On the west end of the site were the dining halls and on the east was a five-story dormitory quadrangle.

The fourth scheme departed completely from the direction of the others in that it involved eight-story interlocking square towers, with a central building on two different levels tying into the lowest level of each of the towers. The roofs of the dining halls as they stepped down the site were roof gardens for the living rooms. This was one of the most interesting schemes of all. It presented opportunities for variety and interest that were not possible in other schemes.

The fifth scheme also involved eight-story dormitory buildings directly connected to a large central building which contained all the public spaces.

There were actually five more schemes that had been studied and drawn, but many of them were variations of one of the previous schemes.

Each of these plans were presented to the Jury by the designer who drew it. Each designer explaining the scheme and answering the questions with regard to esthetics, function, construction and circulation. The Jury then met to determine which, if any, of these partis should be pursued. The debate was hot and heavy and lasted for hours, but the decision was reached that none of the schemes as presented were thought to be entirely adequate.

A scheme utilizing aspects of several schemes was proposed by members of the Jury. We were to try to maintain the central dining hall, but combine this with eight-story dormitory buildings. This solution allowed for more flexibility in the placement of the dormitory units and opened the site up more than ever before. After further study, the dormitories grew to nine-story towers with the living rooms on the first floor and eight-stories of bedrooms above.

This was the final parti and was pursued to the fullest for by this time the pressure was on—almost two months had gone by—one month remained to study all elevations and details, make practice renderings and make the final presentation which was to be in ink. With the exception of a few nights, the drafting room was to be open twenty-four hours a day until completion. From this point on the success depended on whether individuals could sacrifice personal taste and their preconceived notions to the integrity of the design.

We decided to concentrate our efforts first on the dining rooms, to create a light and open pavilion and to focus the attention on this central unit so that the dormitories would become neutral backgrounds for the center of interest. By this stage the time we had left could be counted in days, but it was amazing that as the deadline grew nearer, the pressure of the job to be done made everyone work in closer harmony. Our minds were more free than usual of the sense of possessiveness about our own ideas that usually plagues architects.

The last several days were a great charette. Most of the DesignTeam had been almost sleepless for a week. At night we took catnaps in a large contour chair in Mr Warnecke's office. Mr Warnecke used every means to keep us up to our capacity. One evening before supper we made a safari to the local Health Club for a steambath and rubdown. The secretaries came into the office in the evening with coffee and sandwiches.

The last day there were eighteen people in the drafting room working on the drawings, lettering and putting on title blocks, etc. I had never before seen five people working on one 20 x 30 inch piece of cardboard at the same time.

A few days later I went on vacation and when I returned I found that in the interim the office had received a letter from the Professional Advisor notifying us that we had won by unanimous vote of the Jury. We were all jubilant, of course, over the reward for our efforts, but even more, the report of the Jury complimented the design on the very points we had struggled so hard to attain.

The Jury complimented the scheme on its simplicity, on being a solution which is in harmony with the objectives and character of the University as a whole. The winning design, they said, managed to create "a feeling of enclosed and comfortable space for the whole and a fine integration of interior and exterior space."

Let me briefly review those steps in the design process that seem particularly important. The first is knowledge of the problem through accurate programming and intensive research. The second is the concentration of the individual designer. The third is to leave no stone unturned in investigation of all possible solutions. The fourth is design criticism from those who remain, at least in part, external to the details of the problem. With these steps in mind it is possible to invent processes which will help toward the success of group collaboration. ◄

design /

Pereira and Luckman, Los Angeles, California

REPORT BY JAMES LANGENSHEIM

► I fully believe that all else being equal, the creative aspect of architecture makes the difference between competency and greatness.

To create brings many words to mind—thought, imagination, originality, production. However, it is the integrity of these processes that gives significance and life to a created work.

Since the time when men raised the first lintel and until this scientific and very technical age in which we live, architects have been striving to solve the ever-changing needs of people. This is the wonderfully challenging part of architecture—we are not dealing just with piles of materials, but with all the factors, new and old, that shape modern society.

There is probably no other profession that offers more opportunity for the creative than does ours. Contrary to common belief, architecture is not a "skin treatment." We need creative programming, creative research, creative design, creative structure, creative use of materials, creative supervision; in fact, creative total organization. Great architecture results when creative thinkers try to better solve their problems not just "to be different."

We received a program from the Southern California Council of the Methodist Church for the School of Theology to be located at Claremont, California. It was "a creative program," the type hoped for but not often received. A few paragraphs read as follows:

> "Because everyone feels architecture, whether they understand it or not, and because it is always present, it is a subject of extreme importance. It is not conceivable that one of the traditional and historical systems of architecture would be used, whatever its emotional appeal may be. At the same time the cold, mechanistic chrome-and-steel style of the modern is not suited to the dignity and inspiration demanded of a theological school. It is apparent, therefore, that a new concept of architecture is required of the architect. This should not be a combination of the old styles, although undoubtedly there will be evidences of the old in the new; it is rather a substantial departure from established architectural concepts."

The program then listed all the factors affecting the design of the project.

This was a real challenge: To formulate a new architecture, not a "rehash" of the existing.

At Pereira & Luckman we have what is called our "Board of Design" that consists of: Mr Pereira, Chairman, Design, Planning, Facility Planning and Interior Design with six members in all.

After receiving the program, Bill Pereira called us into his office. We read the program and started a series of dinner meetings and conferences to establish the direction of the project. This proved to be one of the most valuable parts of the job — "intellectual creation." Wonderful discussions followed. Each of us were assigned different fields of research to stimulate the group thinking. We asked ourselves many questions:

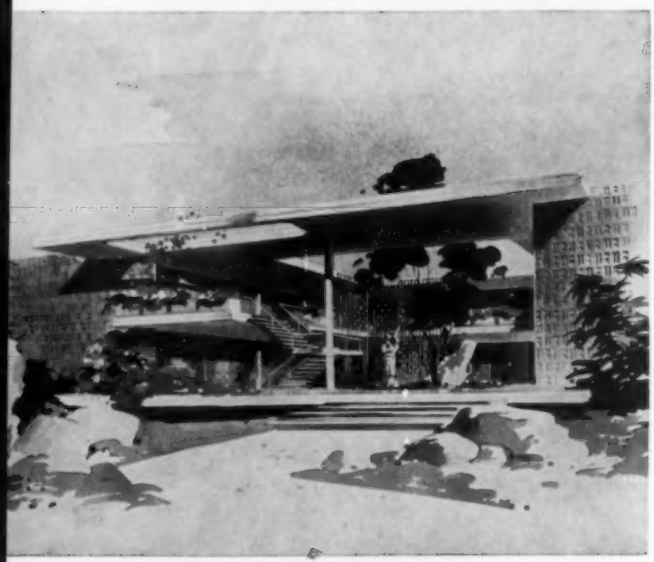
What kind of people would come here?
What did they expect to gain here?
What could we do to create a place?
Should the architecture stimulate them?
If so, how much?
What should they leave?
What should they take with them?
How far could we bridge religious tradition?

After three or four meetings we began to put our thoughts on paper and to relate our thinking to the program solutions. Each of us were working on different parts of the project and after one week we reviewed our work at an information presentation in one of our Design Board meetings.

After this material was reviewed, definite assignments were made, and work on the master plan began.

Several words had been introduced in the program:





the *compage* — a series of buildings intermeshed into one building form; the *parterre* — a series of expanding levels or entrance.

These words were new to us, but not the philosophy. For years Mr Pereira has been developing the idea of several academic units of different functions housed in one structure that is really not a building but a "controlled environment" of great economic value because of its increased space utilization and reduction in duplicated mechanical and circulation problems.

This main theme was followed in the development of the master plan. There were meetings with Faculty and Board of Trustees, the adoption of the final Master Plan and the models of the Master Plan.

We have not tried just to be "different." We have tried to be creative in solving this problem. How successful we have been only time and use will proclaim. ◄

Project: The design of a School of Theology to be located at Claremont, California, commissioned by the Southern California Council of the Methodist Church. The commission read in part ". . . cold, mechanistic chrome-and-steel style of the modern is not suited to the dignity and inspiration demanded of a theological school. It is apparent, therefore, that a new concept of architecture is required of the architect."

The project was certainly a challenge.

design /

Anshen & Allen, San Francisco, California

REPORT BY RICHARD HEIN

► As a design problem, the Visitor Center offered several interesting challenges. Since it was to be one of the first projects to be completed under Mission 66 its possible influence on future projects was of considerable importance.

The Visitor Center is intended to house the largest deposit of dinosaur remains in the United States. One wall of the building is the cliff face itself containing the remains. The Center not only provides protection for the remains but serves as a shelter for continuing archeological work and contains facilities for the public to view the actual work as well as descriptive exhibits relating to the history of the site and the dinosaurs. The Center also contains Park offices, service facilities, work and lecture rooms and public facilities.

The Visitor Center is basically a museum, and as such the preliminary design prepared by the Park Service treated the building in the manner of previous Park Service Museum Buildings. The Park Service proposed a fully enclosed shelter with controlled artificial light only. Natural light was permitted only in the service and office rooms.

In the office of Anshen & Allen each new project is assigned to a Project Manager who is responsible for all phases of the work, under the general supervision of the principals, including design, working drawings, specifications and cost estimates, and general supervision.

The first step in Anshen & Allen's development of their design was a visit to the site by Mr Anshen. A conference was then held with Mr Anshen, Mr Allen and the Project Manager to discuss Mr Anshen's impressions of the site and carefully review the program requirements. It was immediately apparent to us that the Park Service design, while being suited to the normal concepts of museum planning, was failing to recognize the unique aspects of this particular project.

Normally, museum exhibits are brought to the museum. In this instance the museum was to be constructed over the exhibits themselves. A totally enclosed and artificially controlled environment would divorce the exhibits completely from their natural surroundings and would fail to enhance the visitor's sense of orientation of the remains to their surroundings.

It was therefore determined in the initial design conference that the exhibit shelter itself should be as open as possible in order to achieve a maximum integrated relationship of the remains to the site. The shelter was conceived as a totally glazed structure. This conception had the additional advantage of creating the least intrusion of the building on its natural surroundings which had been one of the Park Service's principal requirements. The administrative and utility areas were to receive a subordinate location and treatment to the main Exhibit Shelter in order to detract as little as possible from the public's view from the site.

Since the site was in a narrow V-shaped cut created by the natural uptilting of the terrain and the previous excavations it was at first thought that a roof system consisting of a series of suspension cables on a catenary curve spanning the cut and supporting a light-weight roof structure would not only be most intimately related to the contours of the surrounding terrain, but would also create a minimum of structural intrusion on the site.

Severe climatic conditions involving temperature extremes, and wind and snow loadings made a suspension system impractical. The roof system was, therefore, modified to a simple rigid frame system supporting an asymmetrical butterfly roof which overcome the climatic problems but retained the original conception of roof form.

Because of the Park Service's method of conducting the visitors through the Center, the main entrance was required to be at the upper gallery level. Many approaches were tried until the final design utilizing a gently curving ramp originating

Art Huey

Art Huey

at a central point on the parking area and sweeping up around the circular element (containing the second floor entrance lobby, offices and rest rooms) at the southeast corner was decided upon. The solid mass of the circular element created a design contrast with the glass Exhibit Shelter and provided a transition space for the visitors. A single-story office and utility wing was extended from the circular element along the entire south side of the Exhibit Shelter. The roof of the low wing was extended into the Exhibit Shelter as a cantilevered visitor's gallery. Because of the completely open design of the Exhibit Shelter, sun control was of major importance. This control was accomplished through the use of broad roof overhangs on three sides carefully studied to provide the optimum protection.

Because our design was a radical departure from the original Park Service concept we were faced with the problem of convincing the Park Service of the validity of our design. A preliminary presentation was prepared, including plans, sections, perspective renderings, solar diagrams and a preliminary cost estimate as well as a comparison cost estimate of the Park Service's original design.

The presentation was submitted to the San Francisco office of the National Park Service and we were gratified at the enthusiastic reception our design received. The cost comparisons showed a difference of only a few hundred dollars between the original design and our own. Members of the Park Service agreed that our design was, indeed, superior to theirs but cautioned us that such a radical change would necessitate a resubmittal of the project to the Park Superintendent, the Regional Office, Museum Branch and National Headquarters in Washington, D. C. for final approval. We were warned that the resubmittal was liable to raise numerous protests from the various agencies because of the departure from traditional concepts of how a building of this type should be designed.

Because of the number of agencies concerned in the final approval there was a prolonged period of presentations, discussions and numerous minor adjustments to the design before everyone was satisfied with the design and convinced of its basic validity. Final approval was not obtained until the Director of the National Park Service had been called to San Francisco to make the final decision. At this meeting the attitude of the members of the San Francisco office, we felt, contributed greatly to the Director's final decision to accept the design and approve the completion of the working drawings and specifications.

The design of the Visitor Center clearly demonstrates that while it was not in accordance with the traditional concepts of design for its type of building, the design was based on valid reasoning and an understanding of the basic purposes the building was to serve, as well as a sympathetic feeling for the surroundings it has already won favorable acceptance from the park personnel and the visiting public. ◄

Project: The design of a Visitor Center at Dinosaur National Monument, Vernal, Utah, commissioned by the National Park Service's Mission 66. The Center was to serve basically as a museum to house the largest deposit of dinosaur remains in the United States, and was to be set in the rough and rugged hills of Utah.



Art Hupy

. . . a *fine* but *difficult* calling

M. Laprade as seen by Noel Musgrave, Editor of the RIBA Journal



► From all time, the architect's calling has been such a passionately exciting game that kings themselves have taken a fancy for it. Dismayed by the brevity of life, and of oblivion, the minds of men have always been haunted by the idea of creation and survival.

In November 1915, after one of his customary rages, which was remembered for a month, Lyautey, on the site of a new park at Casablanca, tendered an apology, accompanied by an aside in these curious terms: "How lucky you are to be an architect. Men are ungrateful. Of anything I have been able to do for them, nothing will remain. Whereas architects at least leave trees and stones." But not without worry!

At one time, power was concentrated. Now, it is diluted in the extreme. There is not a minister, a member of parliament, a mayor, a civil servant, a financier, a writer, or a pretty woman who does not think him- or herself absolute master in his or her own field, and what is more, an infallible expert in architecture. To begin with, this adds ever more complications to our calling, complex enough already with its multiplicity of laws, regulations and controls.

But this is not all. Political and social evolutions have disastrous repercussions when they cause indiscipline and disorder, a state of affairs that is inimical to our calling, which requires just the contrary.

This, without taking into account the deep disturbances that follow an excess of bureaucratic tyranny, with all that means in narrow-mindedness, partiality and friendly or unfriendly machinations.

Today, we have on the one hand our most-favoured individuals who benefit by miraculously engineered commissions and contracts; on the other hand, the pitiful, poor ones, living how they may, on the crumbs. For the latter, to carry out each year one school, two or three low-cost schemes of fifty dwellings constitutes an extremely difficult operation. They must obtain all the "technical" consents, which means that their schemes, on awkward sites rejected by others, must be started again four or five times over, the several controlling authorities wanting systematically the opposite to that which is offered up to them.

First obstacle race: the site layout. A very queer game, of which the rules change like the colours in the sky. Next, the plan of the dwelling unit: a good one; in fact the only real solution: that's another worry! Not on account of the preferences voiced by the users (to whom little consideration is given), but because of a whim hatched in the brain of someone "inspired" by the Art of Architecture. And the oddest thing about the hatching of these various "Gospel truths" is that in six months' time the latest hatching is no longer valid . . . and that the same thing will happen the next time.

The scheme is thus offered up, mauled and remauled, under the directions of some minor official, on the lowest rung of the ladder, for whom the regulations are the regulations, as they say in the *gendarmerie*.

At last the scheme, by divine Providence, is passed!

But today nothing is simple. To be sure of having a tenderer, to avoid collusion (really!), a list of "approved persons" is thrust under your nose, persons whom you know neither from Eve nor from Adam, in spite of their testimonials of important works (who hasn't such certificates today?). But you still know absolutely *nothing* of their real worth.

Thanks to notices plastered all over France, you at last get your tenderers. It is then that the real drama begins! If the work is to be carried out in Paris, you are offered an assortment of provincial firms: if in the provinces, an assortment of Parisian firms; or else a string of Parisian and provincial firms grouped together under some mysterious agreement rarely advantageous to the State. Fortunate is the architect in whose orchestra at least half of the executants are known to him. For, when lost in the fog with the others, he will suffer anguish!

By no means are we overlooking all the difficulties that contrac-

You will find it consoling to learn that the architects of France suffer from the same headaches that we do! M. Laprade's amusing but too true lament was first published by the SADG, then translated by R. B. White and published by the RIBA. It is now published here with permissions and thanks all around

▸ *tout est mobile et périculeux** ◂

by

Albert

Laprade

tors have to contend with. But, apart from the solid, substantial and well-organised firms, how many are there of recent origin, vague "limited" companies of very limited responsibility . . . and only too often the scene is as follows.

A perfect start: The heads of firms are present in person at the first meeting, protesting their utter dedication to the task. To hear them, they have the most remarkable office staffs, abundant labour available, and all the requisite materials. But, if the excavations are dug smartly, then is the time to sing small, for simultaneously, out of the ground appear both brickwork and troubles! One fine morning, the excellent site foreman, to whom you had been introduced, disappears. He has been packed off to another site, more important and urgent than yours. You had been promised a sufficiency of skilled operatives. In fact, there are few about, recruited with difficulty through advertisements in the local press. But, of course, the situation is temporary. Tomorrow, or Monday following (at the latest), the labour force will be doubled, tripled, and the excellent foreman, whom you met the first day, will be back.

But this is really all comedy. If, by any chance, the walls are rising as they should, this will be only causing much worry to other trades who are finishing work on other sites and are not yet in a position to start on yours immediately. However, the labour force that is just finishing (?) three thousand dwellings at Caën will be with you very shortly (unfortunately, we know the meaning of "shortly" in the Building Industry). Meantime, your site seems devoid of labour, or, if you do happen to get a glimpse of any, it is looking out of windows or having "snacks." Later, on the site, you will see creatures unknown to you: Plasterers, fixers of joinery, tilers or paviours, piece-workers engaged by your tendering firms, sometimes even by their sub-contractors, who laugh rudely at anything you may say to them. Above all, never again do you catch sight of the real boss. And the office staff turns up when it can. How could it be otherwise? Your tenderer has pulled off ten other very important "deals" at Nancy, Le Havre, Marseilles, Toulouse, Lyons, Bordeaux and Paris.

The boss, the clerical staff, the sub-contractors and labour force are playing at merry-go-rounds between the more important sites. From week to week you are fed on unkept promises and tall stories: the terrorists have frightened away the North African labour, the younger clerical staff has been drafted into the forces and sent to Algeria, the site foreman has been operated on for a sudden appendicitis, has just lost his mother-in-law, or his wife has had a baby; the workmen are on holiday and are not yet back, etc. If the site be in Paris, according to the season, you are told about work for the Home Arts Exhibition, the Motor Show or the Trade Fair, etc. If at Le Mans, the "twenty-four hours," or the "four days," for which preparations last for a month and require the entire labour force. Important priority contracts for which a client in a hurry will pay cash! All this without taking into consideration the "beginning of school-term" which, in any town in France, may occupy everyone from 1 September to 15 November. But tomorrow, always tomorrow, it will be "all yours." When you get cross, the contractor will confess that he hasn't slept for a week. The State owes him 200 million francs (so it seems) and he is running around trying to raise ten million before next Saturday. His banking worries seem quite terrifying. You are left wondering at the interest that the unfortunate fellow takes in your

* Paul Valéry to André Gide (1898)

job and the technical problems of its execution.

The poor contractor, you can guess, has not only money troubles but labour troubles too. In fact, at the least criticism his gang will pack up and join his competitor. In some instances, an entire building-labour force will disappear suddenly. The reason: An aircraft or a motor-car factory has just started up or is enlarging its works, taking over, at any price, bricklayers, wood-workers, locksmiths, joiners, electricians, painters, etc, and is paying labourers the same rates as skilled operatives. What can the architect do amid this organised muddle, with nobody at the top to phase the operations according to the available labour?

It is the same comedy with materials. At one time, doors and windows were made near the job. You had them on the day they were needed. But an astonishing new bait has been discovered, called "industrialisation." At last! the Marseilles contractor can thus order his doors from Rouen or Mezieres-Charleville (or vice-versa). Everything was ready, three months ago, to receive them, but they do not arrive. They will be there at Easter (without fail). They are still being awaited at Whitsun. They will arrive next week. And this time for certain! At last you hear that the 3,000 doors have arrived—but warped, spotted, crushed, the corners broken in transit, unacceptable, and the entire consignment has to be returned. Whence six months of extra delay. The same comedy for the prefabricated partitions being made 200 or 300 kilometres away. With pipes, radiators, boilers, sanitary fittings, telephone installations, lifts, bricks, cement, plaster, tiles, the delays are unheard-of; or at least furnish the classical excuses for delays on the part of the contractors. You can always reply that the only course open is to determine the contract, stop the work and invite new tenders, ruin the defaulter and start again from scratch. Easily said. But with the length of time required for the correct procedures in our administrations, themselves subject to endless controls, and the obligation to be over-nice on points of integrity, even leaving aside the time value, to paralyse the site for several months is not a solution. What would the clients say, who only have one idea in mind: to take possession of the works?

Today, everything is relatively simple for the "big boys," who are well organised and have well-lined coffers; they can emerge with a profit. But everything is difficult for the small man, who becomes maddened by regulations and papers of every colour which cause him greater worry than the job itself. You can understand how it is that well-set-up contractors will suddenly abandon you in order to take on factories, warehouses, banks, with certainty of being paid on the 27th of each month with a well-backed cheque (or even to build roads, canals and bridges with engineers, who show infinitely more initiative and independence).

The role of the architect has never been so complicated as it is today, with the confusion that reigns over the actual quality of materials. Whether it be a question of foundations, of concrete, of heating, of metals, of the innumerable new brands of goods, he is obliged, under penalty of delaying the work, to make rapid decisions without the means for having everything investigated in advance. Whilst in receipt of insufficient remuneration, he is confronted with specious arguments about American methods or those of consulting offices, and in addition is expected to take on enormous risks, since he is forcibly associated, by savage contract, with contractors of whom he does not know the moral worth, the technical competence or the financial status. Society takes advantage of the tradition that architects have always so loved their work that they will accept anything, so long as they can build.

A manufacturer of aircraft or motor-cars may deliver a machine with a fault in the metal that may cause the death of hundreds: he is not dismayed; no more than the engineer-officials! A manufacturer of shoes or clothing may send you appalling rubbish: you only had to refuse to buy it. Doctors prescribe medicines, patients die, others may be maimed for life. There is nothing very grave about that: The remedy was guaranteed by the State! But there is no escape for the architect. The smallest chip off a corner, the slightest patch of efflorescence or dampness, the least crack (if only due to the shrinkage of cement) becomes a pretext for a lawyer's letter. It is so convenient to be able to put off the big accounts for a few months or to obtain an enhanced discount!

Because of the scattered activities of the bigger firms, those engaged in building and public works are obliged to recruit whomsoever they can on the spot. To get to know the mentality of those innumerable workers in whom both the worst and the best can be found, it is a good plan to read that curious book *Kilowatt*. The most appalling consequences arise from the least lapse of conscientiousness. What conscience, however, can workers have, of whom many are no longer interested in what they are doing?

The phenomenon is not particular to building, it may be found on all public works sites. How many times, on our way round these vast sites, which also contain many nooks and corners, have we found groups of ten or twenty men "arguing the toss." This does not seem to worry the engineers and contractors unduly. Nonchalantly, they will admit the loss of a percentage of time in their reckoning. But in the larger industrial works everything can be thrashed out by local agreements, whilst our buildings ultimately come under the jurisdiction of tribunals. Whilst on the big public works there are considerable control staffs, the architect, paid by fees of which half are eaten up in the cost of preparing drawings, finds it quite impossible to maintain staffs of engineers, engineering assistants and supervisors in permanent residence on the site, and of whom the remuneration can be "lost" in the total of expenses. Furthermore, a blunder in public works is often overlooked. In building work, on the other hand, it is always a matter of gravity. Take a simple example of floor heating: imagine, in a heating system, a few coils that are not strictly level; a piece of rag or cotton-waste has remained in a pipe (put there to keep dirt out of the end of the pipe). Its removal gets overlooked, the coil is welded and concreted-in. And on with the test! How, in tens of kilometres of piping, can the wretched architect discover such an idiocy (whether intentional or not) on the part of a workman who came from

heaven knows where and who has disappeared long since?

So, rarely have we seen an age so passionately interesting or so dangerous. Erstwhile, each trade *was* a trade. From father to son the work was hard, without hope of immediate results. But times have changed. All of a sudden, in the last ten years, building has become a kind of racket, fascinating, and safe for quite a long time. "Smart guys," who, during the war made a pile in butter, eggs and cheese, are now selling prefabricated materials, doors, windows, paints, etc. Often they take out Swiss, German or American licences, and start off with a great show of advertising, prospectuses, and overtures for political backing. That might have worked perfectly in countries either conscientious or very rich, where they build for a maximum durability of forty years, where insurances are the order of the day and where architects are not held responsible for everything. Such is not the case with us. Take the example of paints: Once upon a time architects knew about red lead, prepared on the job and used fresh; they knew about white lead, linseed oil, genuine turpentine, and they recognized three or four brands of good paint, matt or high-gloss. Now there are fifty or more, made by people who, ten years back, knew nothing of the whole business. But they confuse you with clap-trap, with scientific-sounding names having wonderful endings in -al, in -ol or in -ine, which remind you of those names of pharmaceutical products that cure you of everything. Alas! is is only necessary to look up at one of our great multi-storey blocks to tremble with apprehension at the sight. After a year, some of these great schemes cut a sorry figure. Metal windows and balconies that started white are now red with rust that is being washed down the new facades (even before six months are up). The cursed paints with mysterious names have some singular properties. They may not protect the metal, but they jam the fastenings so effectively and so rapidly that it becomes a major operation to open and close the windows. Hence the breaking of innumerable panes of glass. On woodwork, the same kind of trouble as on metal: these materials being expansible, slight crazing or blistering quickly becomes noticeable in our modern paints that have no elasticity. Then they wrinkle, flake and fall off. Architects of the highest reputation (and we would add builders, too) fall for them. The manufacturer to whom you address your complaints replies: "My paint was excellent, but how did the foreman mix it up?" or "My paint should only be used in dry weather." A good joke—when you work in a foggy climate where it is drizzling on five days out of seven and you are pressed to hand over the building in a hurry!

And among all this disorder, a few labourers wander aimlessly around carrying a plank on the shoulder, breaking a pane here, splintering an arris there, marking the paintwork in corridors and staircases, without the least concern!

If the architect receives little help from the lower orders, he is even worse served from above.

In our day and age everything is industrialised and commercialised. The great aim is not to build well, but to manufacture and sell goods at the greatest profit. At the summit: The Board of Directors, a cunning display of admirals, generals, and retired higher civil servants, with a scattering of titled personalities well versed in horse-racing and, of course, a few unemployed ministers. All this world is manufacturing and selling reinforced concrete, joinery, plumbing, etc, without knowing the least thing about it. The essential thing is to pull off some fat deals, thanks to "friendships." Everything can be arranged if the Chairman-director-general has a little competence and can engage a really suitable technical manager. But the trouble is that the technical manager, conscious of his essential role, claims one fine day a salary commensurate with his services.

There is no end to the catalogue of disappointments which result from the contamination of building by politics and by commercial and industrial techniques. Because of excessive demand, because of the desire to make a lot of money quickly, and because of the lack of conscientiousness and the lack of proper training for labour, the architect must work under extremely dangerous conditions. The



materials that are snatched up as soon as they come out of the factories are a constant source of worry; cements delivered the day following manufacture and causing disastrous shrinkages; plasters adulterated by chemicals, with detestable consequences, etc. The list of disagreeable surprises in store for those in charge of building works would be a long one. It would be a good time, too, for the profession, or a group such as the UIA (International Union of Architects) to draw up the balance sheet of fifteen years of experience, not only in France but abroad. The conclusions would be very instructive. It would be realised that "technicians" in offices are guiding us by their "imperative directives" towards catastrophes, leaving the architect to extricate himself from the mess as best he may, face to face with an expert and a tribunal, the more severe when the architect is reputed to have been engaged on important works in the preceding years.

The industrialist who is classified in the "higher income brackets" may pay heavy taxes, but what is left to him cannot be taken away. He can sleep peacefully. Whereas architects, especially those in the public eye and with the best connections and the most work, remain exposed to the most humiliating and disastrous consequences. For to carry out huge contracts, without material possibility of supervision, augments considerably the chances of being landed with some substantial law-suits.

The Little Sisters of the Poor would find much inspiration in starting up a few additional rooms in their homes for architects—the latter will happily find some consolation in reading the Book of Job! ◄



DO YOU KNOW YOUR DOCUMENTS?

FOR INSTANCE—*Supervision by the Architect*

BY WILLIAM STANLEY PARKER, FAIA, *Consultant to the Institute on Contract Procedures*

► The question of the Architect's responsibility for supervision of construction has always been a matter of concern to the profession. How should the Architect describe this element of his service? What portion of his fee should be reserved to cover the portion of his service furnished after the construction contract has been signed?

The AIA form of Owner-Architect Agreement in use prior to and during the nineteen-twenties provided that 60% of the fee was due on completion of the working drawings, the remaining 40% to be paid in installments during the process of construction. It became evident that some owners found it convenient to save 40% of the fee by doing away with the Architect's supervision and that 40% of the fee was out of proportion to the relative importance of the supervisory service. In 1943 the standard agreement form provided for 75% of the fee to be due on completion of working drawings and specifications, leaving 25% for payment during construction. In the new form issued in 1958, 75% is due on completion of the plans, and another 5% on receipt of bids, leaving 20% due during the construction phase.

This progressive reduction in the portion of the fee due during construction has not been due to a reduction in the understanding of the importance of the Architect's supervision but has been based on financial policy. It remains true that the Architect's responsibility to protect the Owner's interests during construction by endeavoring to prevent errors and defects in the work of Contractors and Sub-contractors, is an important element of his service. As expressed in the current Agreement Form (B-131) "He shall endeavor to guard the Owner against defects and deficiencies in the work of Contractors, but he does not guarantee Contractors' performance under their contracts."

The Architect's supervision, due to his failure to note some defects, has resulted in a number of court cases of interest, and is giving the profession some reasonable concern. An Owner must prove the existence of negligence if he is to make a valid claim against his Architect for failure to give adequate supervision. This raises a question that is not always easily answered, whether the case is being resolved by arbitration, as AIA Agreements provide, or by court action.

An Architect's fee covers supervision for the general purpose noted in the clause just quoted. The standard agreement forms add that if the Owner agrees a full-time Project Inspector will be employed and paid for by the Owner. This indicates clearly that the Architect himself is not expected to be on the job all the time. His visits may be once a week or sometimes oftener but it is obvious that the bulk of the work will be done when he is not present and can't possibly, therefore, detect every conceivable defect in material or workmanship. The Contractor is basically responsible to carry out the work according to the requirements of the plans and specifications.

The fact that the Architect did not detect some defect does not make him responsible for the defect. If it can be shown that he did not use normal diligence in his supervision, the Owner can secure some redress through a reduction in his fee, but this in no way reduces the Contractor's basic responsibility for furnishing the work as specified.

A court case in Virginia is a case in point. Some 8″ columns were specified. The Contractor used 6″ columns instead. The Court held that failure to note such an obvious substitution indicated negligence and the Architect suffered a financial penalty as a result. Most cases in which negligence is claimed are not as clear-cut as that, however. Sometimes the Architect's supervisory duties are claimed, by an Owner, to extend to matters wholly the responsibility of the Contractor.

In Montana an Owner claimed the Architect had failed to detect defects in the way the Contractor had handled the construction process. The Court held that the Architect was responsible for the end result as called for by the plans and specifications, but that his responsibility did not extend to cover the means employed in doing the work. That was the responsibility of the Contractor.

It is true that there are important steps to be taken by an Architect in giving adequate supervision. This is made quite clear by the various items noted in the AIA Handbook of Architectural Practice when this feature is discussed. ◄

The American Institute of Architects Foundation

by **Allan H. Neal, FAIA**

Secretary-Treasurer of the Foundation

► It was H. G. Wells, a noted creator of fantasy turned into a frightened realist at the end of his life, who warned us that history today "becomes more and more a race between education and catastrophe."

We see this truth emblazoned in every day's newspaper headlines—whether the problem is one of education for democracy or research for physical survival. And in the tight mosaic of modern industrial life, no profession escapes its share of responsibility.

I have before me many pamphlets and brochures pleading for more and more emphasis on education and research. They are published variously by the professions, by industry, business, educational institutions and by the many institutes, bureaus, societies and associations charged with furthering the long-range interests of members.

The titles alone are compelling: "Our Investment in Tomorrow." "How Research Shapes Our Future." "Tooling Up for the Age Ahead." "What Can Be Done About It?" "Are We Preparing Now for the Rest of This Century?" "Tasks for the Inquiring Mind." "A Progress Report on Yesterday, Today and Tomorrow." And so on and on.

Never before in US history has so much money been appropriated by government for research and by industry for rapid improvement in education. Each profession is looking to its future and most of them have educational and research programs well under way.

Like all other professions in the twentieth century, architecture is faced with cataclysmic changes. We have been telling ourselves for many years that we need a clearer definition of our purposes, a stronger advertisement of our services, enough gifted young men to keep the profession serviceable in all of its age-old functions and to prevent the gradual dispersal of architecture into endless separate specialties. Yet what have we actually done about it personally?

Since 1942, when Albert Kahn subscribed $10,000 as the initial fund to create an architectural research foundation, some of the Institute members have been vaguely aware of The American Architectural Foundation—into which money from grants, wills, estates and gifts has flowed intermittently for education and research and regularly has flowed out again.

Over the years the Trustees served the Foundation selflessly and without remuneration or even reimbursement of expenses. In 1951, after great effort, an impressive brochure entitled "The American Architectural Foundation—Its Origin, History, Objectives and Progress," accompanied by personal letters, was sent out to 11,000 architects, soliciting subscriptions to a fund for the Foundation. The results were disappointing. While many architects made pledges, many more did not; and even of those who did, over $2,500 in pledges remained unpaid and were written off recently as uncollectable.

The Foundation funds are pitifully meager, and its activities have always been limited by this fact. A small General Fund and charges on other funds

have been the only resources available for all administrative expenses.

In view of this situation, with our limited funds and a developing skepticism of the AIA Board of Directors regarding the future usefulness of the Foundation, it was recently decided that it should be reorganized, a more realistic program be developed and a closer relationship with the Institute be established. The individual identity as a separate independent organization would be retained, to qualify for receiving gifts on a tax-free status; and the Foundation would be the only agency within the Institute with authority to solicit funds in its own name or in the name of the AIA.

At the San Francisco Convention of the Institute this year, the necessary legal actions having been accomplished, this reorganization took place and a new name, "The American Institute of Architects Foundation, Inc." was adopted. Under this new setup, the Foundation now consists of a nine-member Board of Trustees, six of whom shall always be present members of the AIA Board of Directors and three of whom shall be ex-members of the AIA Board of Directors. Bradley Kidder was elected President and Allan Neal was elected Secretary-Treasurer.

When willing support for a just cause is not forthcoming, either the objectives of the cause are not fully understood and sufficiently appreciated, or in today's busy world, the story has not been adequately publicized. The new officers and directors of the Foundation hope to rectify both of these omissions.

If you have in your files the series of helpful School Plant Studies for which the Foundation administered funds in the past, you have already benefited by the Foundation. If you have followed the organization and services offered by the new valuable arm of the AIA, the Modular Coordination Institute, you will be interested to know that initial work on modular coordination was underwritten by the Foundation.

How can you personally support the "new" American Institute of Architects Foundation, Inc.?

You can give your support by soliciting donations by corporations, organizations, other foundations, institutes, associations, etc, or donations by any group or individual who desires to award funds for architectural education, scholarships, research, historic preservation, special writing assignments and other worthy objectives. These are your potential donors if you will but tell them of the existence of the Foundation with its tax-free exemption ruling by the Department of Internal Revenue.

The Foundation solicits mention in your wills and in those of the friends of architecture everywhere. The President (Bradley P. Kidder, 707 Canyon Road, Santa Fe, New Mexico) is ready to answer any questions about the Foundation. The Secretary-Treasurer (Allan H. Neal, 9001 Jenkins Arcade Building, Pittsburgh 22, Pa.) is ready to accept your support in whatever form suits you best. Address any questions on grants, gifts, legacies, donations or funds to the Secretary-Treasurer, and answers will be provided with the assistance of expert legal counsel.

The Foundation now has funds which total approximately $85,000, and which are allocated as follows:

The General Fund: This fund consists of cash and bonds, which can be used for general administrative expenses.

The Capital Fund: This fund consists of cash and bonds, which can be used only for specific purposes as directed by the Trustees.

The Goldsmith Fund: This fund was donated to the Foundation in trust by Goldwin Goldsmith and consists of bonds, the interest on which is payable to Mr Goldsmith until his death, then to his sister until her death, and then reverts to the Foundation.

The Delano and Aldrich-William Emerson Fund: This fund consists of both bonds and cash, the interest on which is to be paid as scholarships to French students.

The Maine Historical Preservation Fund: This fund was donated to the Foundation by Mr and Mrs Donald D. Dodge, to be used for historic building preservation in Maine.

The Kentucky Historical Preservation Fund: This fund was donated anonymously and is to be used for historic building preservation in Kentucky.

The National Board of Fire Underwriters donates annually $4,500 to be used for architectural scholarships selected by the AIA Committee on Awards and Scholarships.

The International Blue Print and Allied Industries donates annually $750 to be used for an architectural scholarship selected by the AIA Committee on Awards and Scholarships.

In the past the Foundation has administered funds for Modular Coordination and School Plant Studies.

If the Foundation is to be of any future value, the present situation cannot continue. The Foundation must be greatly expanded, and paid executive help procured. Other and larger funds must be found to provide the necessary income to operate

the Foundation. It is hoped that this article will apprise the Institute membership and others of the opportunity for much-needed and worthwhile activities which the Foundation now makes available. It is set up and ready for this purpose.

The Foundation is entitled by Internal Revenue ruling to receive donations tax-free to the donor.

Specific purposes for which The American Institute of Architects Foundation, Inc. was founded:

"To receive and expend gifts, legacies and grants whether from individuals, partnerships or corporations, for the purpose of providing and disseminating literature and information of use and advantage to the profession of architecture and the arts and sciences allied to it.

"To assist by cooperation and association in any activity that shall result in the improvement of the practice and science of architecture, and

"To do all other necessary things to effectuate the said kindred objects, subject to existing law and without pecuniary profit.

"To provide scholarships, establish professorships, furnish lectures and materials for the study of architecture in any institution of learning.

"To establish rewards, prizes or medals for meritorious work." ◄

Brief History

of The American Architectural Foundation, Inc.

1942 Albert Kahn at the AIA Detroit Convention subscribed $10,000 initial fund for an independent architectural and research foundation.

1943 American Architectural Foundation incorporated in State of New York by Matthew Del Gaudio, Charles Hopkins, Richard Shreve, Edgar Williams and John T. Carr Lowe. Board of Trustees was Raymond Ashton, Matthew Del Gaudio, Charles Ingham, Richard Shreve and Kenneth Wischmeyer.

War Years Activities of Foundation practically non-existent. James Edmunds, Frazier Smith and William Kaelber replace Shreve, Del Gaudio and Ingham on Board of Trustees. Since then the Trustees—all ex-members of the Board of Directors of the AIA as required by the bylaws—have been Max Foley, Walter Rolfe, Charles Cellarius, Douglas Orr, Alexander Robinson, Thomas Broad, Allan Neal, Albert Simons, Trevor Rogers, Lloyd Roark, George Young, Bradley Kidder.

1948 Henry Saylor appointed Executive Secretary. Fund solicitation sent to 11,000 architects.

1957 Allan Neal replaces Charles Cellarius as Trustee.

1958 Alexander Robinson elected president of Foundation. Allan Neal elected Secretary-Treasurer.

1959 Complete reorganization of Foundation directed by President Robinson, Secretary-Treasurer Allan Neal with assistance of Edmund R. Purves and Attorney John Lowe.

1960 Bradley Kidder elected President.
Allan Neal re-elected Secretary-Treasurer.
Trustees: Trevor Rogers, Frederic Porter, Clinton Brush III, Harry Weller, Robert Little, Oswald Thorson—all present AIA Directors.
Matthew Del Gaudio, Bradley Kidder, Allan Neal —all ex-AIA Directors.



From the Executive Director's Desk

► Having arrived inevitably at that bittersweet moment when this month's "From the Executive Director's Desk" brings that offering to a close, I am able with considerable sangfroid to turn aside the sentimental, the nostalgic, the prophetic or the admonitive. The occasion, though marking the end of an era, does not call for a swan song—for I have none of the "Lohengrin" in my make-up, or for that matter none of the "Pagliacci" either. I was, I am proud to say, raised in a stern school which eschews the histrionic.

A recital of accomplishment over the past dozen years would be tedious at least to me and a theme to which I could not do justice for my emphases would be drawn from personal experience and would not necessarily be those for popular approbation. Possibly some day, when in a properly reflective and philosophical mood, I might tell something of the battles that have been waged before and behind the scenes in the interest of the profession and of the Institute, of the issues that have arisen to confound and frustrate all of us, most of which I feel we have surmounted. You must know that my job in the past years has had many of the characteristics of that of a professional politician and so it was necessary for me to acquire for myself without delay some of the measures necessary to the pursuit of that profession, including a sense of humor and the hide of a rhinoceros, without which protectives it would be difficult to last out a week.

Although a predilection to prophesy is common to politicians, I will avoid that exercise even after things may have fallen into proper perspective (though a view through improper perspective holds far more fascination). Nor do I intend to view the past, the contemporary and the future with a kindly and mellow eye. Increasing years do not enhance my tendency to be mellow. I trust I shall end up my days as a sharp and critical old codger still willing and anxious to come slugging out of the corner.

I have labored for the advancement of the profession and its organization, the AIA. I am not entirely unaware of the inherent truth of the title of a French musical comedy of some years ago, *"Plus ça change plus c'est la même chose."* I am not sure that was the exact title of a fascinating musical comedy playing in Paris after the Armistice in 1919, for the years lend an excusable recollection. It came and went before I was able to get myself transferred to what was officially known as the Sorbonne Detachment in early 1919—a most delightful military racket if there ever was one. A thousand officers and a thousand enlisted men were selected theoretically for their brilliance and ambition, but actually because they could pull the right wires, to be sent to Paris to attend schools of their own choosing while awaiting transportation back to the United States. Well, I had one wire and pulled it, so I found myself in uniform, deloused and pressed, at the Atelier Laloux. I soon left that superior billet to study under Gromort and prepare for the entrance exam for the Ecole.

This is all architectural and of no appropriate interest. What is of interest was the musical comedy and particularly its leading lady, a then glamorous female of proper proportions named Spinelly. As far as I was concerned, Spinelly would have remained a figure of glamour but for one unfortunate experience. A year or so later I attended a reunion in New York of Field Service volunteers, a gallant crew. The head table boasted Jusserand, Dean of the Diplomatic Corps, Myron Herrick, our heroic Ambassador to France, other notables and Spinelly. To our amazement, when

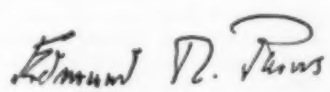
the demand for the singing of "Madelon" was overwhelming, we learned to our horror that she could carry the tune, but did not know the words. Now "Madelon" was a song sacred to World War I and especially to those Americans who had volunteered in the French service or who had been attached to the French Army. It was a song more powerful and more moving than even the "Marseillaise." So for us, Spinelly, despite her vivacity, her good looks and her shapely legs, was a disappointment.

Despite its Gallic ring, *"Plus ça change"* is more axiomatic than gay and is the theme of these observations. In a position like mine where business is people, one learns more of one's fellows in a matter of a few weeks than in the years hitherto and one develops qualities of affection and compassion which one had never imagined were within one's capacity. To work with and for a given group is working for humanity in miniature. And one realizes the hazards of prediction and the prevalence of contradiction. The Institute and the profession do not operate in a vacuum (to coin a phrase). And yet architects enjoy the singular advantage of recording permanently the enduring symbols of society. Our works stand some chance of standing and of giving tangible evidence of our growth and accomplishments.

Let us, however, look at our contemporary society. I sense that possibly we are becoming surfeited with too much material assistance. When I use "we," it is the all-comprehensive "we," not simply architects. For instance, I am alarmed by such devices as the mechanical transportation for golfers, terrifying examples of the continual development and increase of devices to ease us physically and, alas, mentally. We should be evolving devices to stimulate us to physical activity and to incite our intellectual progress. We seem to be willing to turn over the coming century to the developer of devices which will, if not unchecked, atrophy our thinking. Automation is frightening and seems really to be a creation developed for a purpose directly contrary to the solutions to the increasing problems. Walter Reuther is so very right when he says that he sees no prospect of machines buying automobiles which they, the machines, have created and built. And architects, along with the rest of civilization, stand a very good chance of being devoured by the development of labor-saving devices, of automation, and by all developments geared to eliminate insofar as possible any effort on the part of man, either physical or mental. Now in the case of architects this is particularly ironic as we are, as individuals, among the last remaining guardians of self-reliance and individual thinking. Architects are essentially individuals and may not fit particularly well into the "Brave New World" of Huxley or the less attractive world of Orwell.

So maybe we can find reflective architects in the next few years refusing to be assimilated by mechanization and making a stand for the preservation of those vestiges of American character, or of any independent Western character that has served to maintain our individuality and our self-respect. I am not suggesting that we can go back, for one cannot and should not attempt to recapture except in writing or painting, but I do submit that certainly we should strive to maintain that independent character and fend off an automation that could devour us. There will be a struggle for existence. We should strive to maintain a happy balance, somewhat between that of the Eskimo or the Bushman at one end whose struggle for existence always has been so desperate as to have practically prevented him from developing any culture—musically, artistically, or otherwise. On the other end, the acquisition of such a complete facility of existence can deprive man of the essential stimulus. And so there is the danger of acquiring the Bushman's intellectual oblivion through sheer lack of mental exercise. I look with not a little apprehension on the growing tendency of Western man to engage others to do his thinking to face up to his problems—a tendency which fills the pockets of the purveyors of vicarious intellectual exercise.

In the course of my career, I have listened to a very great deal of talk, little of which remains with me. I have, I am sure, made a greater oral contribution than was necessary and surely more than was appreciated or retained. However, I am not thinking of sparing my friends, for I enjoy the exercise of good dispute and sound argument. I have already begun to receive invitations, prompted by the recent news release concerning myself, which indicates that I will in all likelihood be encouraged to pursue this avocation, which I trust will be one of continuing service to the profession.



THE STUDENT PAGE

ARCHITECTURE AND SYMBOLISM

During the past three years senior architecture students at Notre Dame have been offered a course in the "Philosophy of Architecture." New both to the Department and to American architectural education in general, the course uniquely employs rational analysis to penetrate into "the nature of architecture, particularly in its relation to man and the life of man." Content and method of the course are based on the insight that the first thing for the intending architect to acquire should be a clear understanding of what architecture actually is, or, to be more precise, of "the position of architecture in relation to the whole of reality." Architecture has a definite place in the existential order, and an ignorance of this fact, or worse yet, a confusion as to what this place is, would be detrimental to the value of any architectural education. Therefore, the course *a priori* aims at training the student in clear and concise thinking which in turn is applied to the specific subject of architecture, i.e. its function or objectives, its range, its phenomena, the working methods appropriate to and the principles inherent in it. It is clear that such a course does not aim at presenting another architectural theory or "philosophy"; on the other hand, it includes a comparative analysis and evaluation of architectural theories developed in the past and the present. The ultimate goal of the course, however, and one beyond providing the student with a clear and objective insight into the subject of architecture itself is to awaken them to their future serious and great responsibilities as architects towards mankind.

When students, stirred by the implications of Professor Ernest Brandl's courses in Architectural History, realized the need for a deeper understanding of architecture, they worked with him to establish the course, and others, even outside the department, have enthusiastically responded to it. Lectures and seminars, the latter based on the Socratic method, coordinate the study of facts with personal observations.

Papers on the various aspects of the course are required of students, and in the seminar they are read, discussed and criticized. Among the topics treated during the last two years were such subjects as planned obsolescence, prefabrication in architecture, drawing and design, symbolism in architecture and others. Presented below is one of the papers prepared for the course.

by **William F. Thrall**

► A contributor to a recent architectural periodical made the following statement: "Symbols are more powerful than words; more powerful than architecture." Although professional pride may force us to disagree with this unusual proposition, we nevertheless are somewhat jolted by it and perhaps spurred into deeper thought as to the nature of symbolism and its relationship to architecture.

Webster's Dictionary defines a symbol as something "which stands for or suggests something else . . ." and, more specifically, as "a visible sign of something invisible." But although in architecture we are primarily concerned with visible symbols, this visibility is only a special instance of being sensibly observable, and a symbol, generally speaking, is a sensibly observable representation. But it is to be remembered—and this is essential—that this kind of representation is one which recalls an idea to the mind, and is not intended only to be perceived by a sense organ—such as the eye—per se.

Romano Guardini in his book "The Spirit of the Liturgy," states that "a symbol may be said to originate when that which is interior and spiritual finds expression in that which is exterior and material."

Thus a symbol has two essential components: Spiritual content

and external form. It can be seen from this definition that symbolism is related to two of the causes with which we are familiar: The formal and the final.

But the transposition of the spiritual concept into material form cannot be an arbitrary or haphazard one; rather it must be vital and essential, and the ideal symbol occurs when the form selected is incapable of expressing anything else but the single concept. Thus Guardini claims that the body is the natural symbol of the soul. The symbol must be clear, precise, and universally comprehensible. This last qualification is an important one, since the true symbol must transcend individuality and deal with life in the abstract.

Essential to the creation of a symbol are two qualities: The sense of cohesion between concept and form and the power of discrimination between the spiritual and material spheres. To overemphasize or neglect either of these attributes is equally disastrous. The problem, arising here, will be clarified by accepting the distinction, as made by Guardini, between the concepts of "purpose" and of "meaning." Purpose, as we know it, is an organizing principle, placing the object which possesses it into its proper perspective in the order of things, so that one object exists for the sake of another. From the standpoint of meaning, however, an object exists because of itself. Thus a work of the fine arts, for example, has no purpose as such, but it has a definite meaning: That it should exist and express in clear and organized form the intuitive vision of the artist. It is "significant form." Here we come very close to the definition of the symbol: Clear material expression of spiritual content. (The artist, in his work, as Adolf Loos has put it, is responsible to God and to God alone.)

In how far can the work of architecture be a symbol? Here we must be very careful. It is obvious that symbolism and architecture can be thrust together in awkward wedlock. I recall a church built not too long ago which took the shape of a fish. Indignant critics declaimed this structure as being a "symbol of a symbol," and then chuckled self-contentedly at this obviously intellectual and witty observation. Although their ire was perhaps understandable, the substance of the criticism was founded on error. This building was not primarily a symbol of a symbol but an image of the fish symbol. Once a concept has taken material expression it cannot be "re-symbolized," since an attempt to do this obviously produces an image. The confusion between imagery and symbolism is widespread, and in many buildings which are termed "symbolic," one actually is dealing with "images."

But a building, of course, can be a true symbol. Consider the Gothic cathedral, its slender shafts racing upward to the vaulted canopies. Now the canopy has always been an excellent symbol of veneration and respect for regal majesty. It has certainly been applied universally (even to the native chieftain's umbrella) and obviously is the physical representation of a spiritual concept. But two arguments may be proposed which would deny the primary symbolism of the cathedral: The fact that it is the image rather than the symbol of the heavenly city and that the canopy is not the cathedral. To the first of these objections, which is in fact related to the exemplary and final causes of the edifice, I would answer that expression of a spiritual reality such as the heavenly paradise approaches symbolism more closely than it approaches imagery; to the second I would answer that the cathedral would not be the cathedral without the canopy, and thus the canopy is related in a sense to the formal cause of the cathedral. If we examine these buildings it is obvious that they consist primarily of a system of canopies. But does it follow, then, that all works of architecture which have meaning are symbols in the strict and proper sense? Not necessarily. It is quite possible that imagery and symbolism are combined in a work of architecture. We need only to recall Charlemagne's church at Aix la Chapelle, which was obviously an image; in fact it was the image of another building — S. Vitale in Ravenna, founded by Justinian. But couldn't it also be said that this building was a sign of Charlemagne's desire to emulate Justinian, or, more exactly, of his claim legitimately to be considered what Justinian had been before him; and, beyond this and ultimately, a real symbol of the substance of such claim: The sacred office of the emperor of Christendom? Here we encounter an instance of the well-known phenomenon of a particular form being used for its "prestige value," which seems to be the only still-frequently occurring symbolism in today's architecture; the prestige value of such a form, incidentally, today being interchangeable with that of a particular material! But the power of symbolism is a universal one, and for man to create clear and lasting symbols through his architecture will always be a great and noble thing.

Now the perfection of the symbol is directly proportional to its clarity and universality, and the beauty of the symbol is directly proportional to its perfection. Universal comprehensibility is difficult to achieve in architecture, but the great examples and archetypes have achieved it.

Today, perhaps, the symbol is sought for too eagerly and too consciously. Symbols as old as man himself are rejected as archaic or applied without true understanding of the concepts which they express or the dignity to which they are entitled. But in the last analysis, there still seems to be hope that architecture will neither desert nor fail to use in full the abundance of symbolic expression available to it. If it would not, it would not be architecture any more. ◄

Preservation

We introduce herewith a new page which will appear in the Journal *from time to time, consisting of notes from the Institute's Committee on the Preservation of Historic Buildings. We hope it will not only prove of interest to all readers, but also help stimulate interest and activity in this increasingly important work*

► From Providence, R.I. comes "College Hill, a Demonstration Study of Historic Area Renewal," conducted by the Providence City Planning Commission in cooperation with the Providence Preservation Society and the Housing and Home Finance Agency. This remarkably comprehensive study, honored by an AIA award at the San Francisco convention, begins with the challenge that "the citizens of old cities are responsible for finding ways to safeguard, renew and bring historic architecture into living use in the contemporary world—[so that] the cities will become repositories of man's outstanding architectural achievements." This thought should be especially challenging to the architect. This column, which will appear from time to time in the *Journal*, will attempt to show some of the ways in which this challenge is being met by the profession through the Committee for the Preservation of Historic Buildings and its associated Preservation Officers in the Chapters.

William J. Wagner, Iowa Preservation Officer, whose annual "Sketch Book of Iowa Landmarks" is widely circulated by a federal savings and loan association, is now working on this year's edition besides being on a series of TV programs regarding the preservation of local historical points and taking an active leadership in numerous other preservation projects. Such activities as his in educating the general public to the value of the state's architectural heritage is one of the best possible means of assuring its preservation. Likewise, in the educational vein, Iowa State University schedules a preservation short course in September under Lawton Pattens.

The Louisville *Courier-Journal* reports on a survey made in the city's central area by Dr T. M. Brown and Robert J. Doherty of the University of Louisville faculty. Listed were 233 structures that are historically and architecturally notable. This survey will be used in the development of plans for the central area development.

The City Planning Commission of New Orleans has requested the Louisiana Landmarks Society to undertake a similar survey in an area slated for an assembly center development just outside the Vieux Carré. The sixteen-square-block area contains numerous small houses of the early nineteenth century. It is encouraging to see city planning authorities recognizing the value of historic structures in planning for the future.

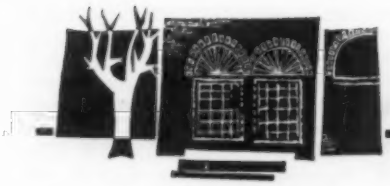
Joseph Watterson, editor of the *AIA Journal*, has replaced Henry Saylor as staff executive for the Preservation Committee at the Octagon. Mr Saylor's years of devoted service to the cause of preservation are sincerely appreciated and we know he will continue with his aid to Joe Watterson.

The transmitting of 105 completed Historic American Buildings Inventory (HABI) forms to the Library of Congress brings the total distributed to date to 4,682. Many states are still not represented in this national inventory and others have only one or two recorded.

It is incredible to hear that Brattleboro, Vt., plans to burn down one of its most historic landmarks, the Hayes Tavern, a 171-year-old structure built by an ancestor of President Rutherford B. Hayes and Architect William Rutherford Mead. President Hayes, on visiting the house in 1877, noted that this was "the old house my grandfather built, where my father was born and where I spent many days and nights in my youth." The old building is now slated to be sacrificed to a wider highway.

On August 6, Earl H. Reed, FAIA, Chairman Emeritus of the Preservation Committee, represented the Committee at the dedication of the Biddle House at Mackinac Island, Michigan, a splendid restoration of a Quebec style house, oldest on the island, parts of which may date to 1780. This was a project sponsored by the Michigan Society of Architects.

A fine article on Philadelphia, with many beautiful illustrations of that city's historic buildings, appeared in the August issue of the *National Geographic Magazine*. Harold D. Eberlein, its author, is to be congratulated for a job well done. ◄



LIBRARY NOTES

Recreation and Sports Facilities

Books listed are available to corporate members of the Institute on the library loan service at a charge of fifty cents for the first volume and twenty-five cents for each additional requested at the same time. G.E.P.

Recreation facilities

GABRIELSEN, M. ALEXANDER, ED.

Sports and recreation facilities for school and community. Englewood Cliffs, N. J., Prentice-Hall, 1958. 370 p.

NATIONAL CONFERENCE ON FACILITIES FOR HEALTH, PHYSICAL EDUCATION, AND RECREATION. 2nd. 1956.

Planning facilities for health, physical education and recreation. Rev.ed. Chicago, Athletic Institute, 1956. 154 p.

NATIONAL RECREATION ASSOCIATION

Planning a community recreation building. N. Y., [1955] 29 p.

NATIONAL RECREATION ASSOCIATION

Recreation areas, their design and equipment. N. Y., Ronald Press [1958] 174 p.

U. S. NATIONAL PARK SERVICE

Park and recreation structures . . . [Washington, D. C.] 1938. 3v.

WILLIAMS, WAYNE R.

Recreation places. N. Y., Reinhold Pub. Corp. [1958] 302 p.

Golf

CLIFFER, HAROLD J.

Planning the golf clubhouse. Chicago, National Golf Foundation, 1956. 96 p.

LEVY, ENOCH BRUCE AND OTHERS

Construction, renovation and care of the golf course. New Zealand Institute for Turf Culture [1950] 100 p.

NATIONAL GOLF FOUNDATION, INC.

Planning and building the golf course. Chicago, [1956?] 41 p.

WENDEHACK, CLIFFORD C.

Golf and country clubs. N. Y., W. Helburn, inc., 1929. 157 pl.

Marinas

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS

The modern marina. N. Y., [c1953] 61 p.

Playgrounds

BUTLER, GEORGE DANIEL

Playgrounds, their administration and operation. Rev.ed. N. Y., Barnes, 1950. 459 p.

GOLLWITZER, GERDA, ED.

Kinderspielplätze. München, G. D. W. Callwey, 1957. 103 p.

LEDERMANN, ALFRED AND A. TRACHSEL

Creative playgrounds and recreation centers. N. Y., Praeger [1959] 175 p.

Sports buildings and fields

ARENA, auditorium, stadium guide. 1960. Chicago, Billboard, 1959.

CAMPANINI, R.

Architettura e tecnica degli impianti sportivi, sport spettacolari, sport medi sport particolari [Milano] Antonio Vallardi, [1950] 211 p.

DE FINETTI, GIUSEPPE

. . . Stadi; esempi, tendenze, progetti. Milano, U. Hoepli, 1934.

GREAT BRITAIN. MINISTRY OF EDUCATION.

New School playing fields. London, H. M. S. O., 1951. 86 p. (Building Bulletin no. 10)

ORTNER, RUDOLF

Sportbauten; Anlage, Bau, Ausstattung. München, G. D. W. Callwey, 1953. 311 p.

SMITH, PERCY WHITE

The planning, construction, and maintenance of playing fields. London, Oxford, 1950. 224 p.

SUDELL, RICHARD AND D. T. WATERS

Sports buildings and playing fields. London, Batsford, [1957] 240 p.

WEBSTER, F. A. M.

Sports grounds and buildings, making, management, maintenance, and equipment. London, Pitman, 1940. 305 p.

Swimming pools

CALIFORNIA. BUREAU OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Planning school-community swimming pools. [Sacramento, 1955] 58 p.

CONFERENCE FOR NATIONAL COOPERATION IN AQUATICS

The outdoor swimming pool, a study report. Philadelphia, 1956. 42 p.

CROSS, KENNETH M. B.

Modern public baths. London, Simpkin Marshall, ltd. [1938] 114 p.

FABIAN, DIETRICH

Modern swimming pools of the world; . . . Florence, Ala., Nat. Pool Equipment Co., 1958. 148 p.

HOW TO build swimming pools.

N. Y., Simmons-Boardman, 1958.

JOINT COMMITTEE ON BATHING PLACES

Recommended practice for design, equipment, and operation of swimming pools and other public bathing places. N. Y., American Public Health Association, 1957. 60 p.

SCHARFF, ROBERT

The swimming pool book. N. Y., Barrows, 1958. 214 p.

SUNSET

Swimming pools. Menlo Park, Calif., Lane Pub. Co. [1959] 112 p.

SWIMMING pool data and reference annual, 1953-1959. N. Y., Hoffman-Harris, inc. 1954-60.



BOOK REVIEWS

Money Metropolis. Sidney M. Robbins and Nestor E. Terleckyj. Cambridge, Harvard University Press, 1960. 8¼" x 5½". 294 pp $5.00

Freight and Metropolis. Benjamin Chinitz. Cambridge, Harvard University Press, 1960. 8¼" x 5½". 211 pp $4.50

These books represent the fifth and sixth of the nine-volume series of studies and projections of basic activities within the New York Metropolitan Region as sponsored by the Regional Plan Association. (The first four were reviewed in the July, 1960, issue of the *Journal.*)

In *Money Metropolis* we are provided with the background history and a full trend analysis of New York's commercial banking, life and health insurance, property insurance, the securities industry, and various other financial services. In the author's own terms: "The financial community is a complex organism that has evolved over a long period of time. It changes slowly. And the forces currently at work are not likely to become suddenly obsolete." (p. 202) On the basis of this, it is concluded that the present major cluster of financial institutions can be expected to remain in the Region at least until 1985, the target date for the projections. The book also develops projections as to employment associated with financial activity, and discusses likely locational trends within the New York Region.

Benjamin Chinitz, in *Freight and the Metropolis,* deals first with foreign freight in and out of New York and then with the ways in which possible changes in the character of freight service may affect the location of manufacturing industries with the Region. He concludes that as New York steadily loses a portion of its share of the nation's foreign-freight handling and as more efficient port facilities are developed, the total employment in manning these facilities will probably grow no larger in absolute numbers, and might even drop. The impact of the St. Lawrence Seaway is astutely examined. In discussing the effects of transportation changes on industrial prospects, Chinitz concludes that for industries highly sensitive to freight costs, the long-range net impact may be particularly unfavorable for manufacturing within the Region. For industries in which speed of transport is paramount the Region may be expected to continue its favorable position.

Each of these studies constitutes a sound contribution. Each enhances our understanding of the New York Region as a basis for planning, and, in line with the other volumes in the series, each points the way toward analyses which could well be adopted to support metropolitan planning elsewhere. These two books are lucid and readable, but a bit more on the solid, monographic side than the brilliant and entertaining.

DONALD L. FOLEY

The County Courthouses and Records of Maryland. Part I. Morris L. Radoff. Annapolis, The Hall of Records Commission, State of Maryland, 1960. 175 pp illus. 8¾" x 11¼".

An exhaustive study on the location and building of the county courthouses in the Colony and State of Maryland. The author has studied the available records and consulted with local authorities to make this report as complete as possible. Illustrations of a majority of the buildings are included and reflect quite a wide variety of styles that have been used.

Architects are noted when known and among those of more prominence one recognizes the names of William Buckland, Benjamin Latrobe and William Strickland. For several of the early structures Mr Radoff has located contracts, deeds, or statutes describing them and these he has quoted at length. Altogether an impressive undertaking, attractively presented, which could well serve as a model for other books of like nature. G.E.P.

Theory and Design In The First Machine Age. Reyner Banham. New York, Praeger. 338 pp indexed. $12.50

Here, sandwiched between some rather opinionated theorizing, is the first really comprehensive work on the multitude of theoretical springs which make up the mainstream of modern thought on architecture and design. Banham justifies his forbidding title by stating that we have now entered the Second Machine Age of domestic electronics and synthetic chemistry (where "a housewife alone often disposes of more horsepower . . . than an industrial worker did at the beginning of the century"). He looks back somewhat contemptuously at the First Machine Age—roughly 1900-1930—as the period when machines, such as the automobile, were to the average person, still remote and romantic. This, he says, romantic adoration from the distance determined the theories and resulting designs of the architects and artists of the period who claimed to embrace technology but didn't really understand it. "Functionalism," he says, wasn't really functional at all. And the "International Style," he agrees with Buckminster Fuller, is only an esthetic concept which did little to improve plumbing. Be that as it may, the bulk of this massively studious work is devoted to the evolution of what, for lack of a better word, is called "Modern" architecture in terms of design theories from Garnier and Perret to Gropius

and Moholy-Nagy. At times as abstruse as the theories it describes and at times lucid and exciting, this study undoes much of the damage Gideon's highly subjective *Space, Time and Architecture* has done to most histories of modern architecture. It is, in fact, a most thorough and thus most valuable book. The layman will find it rough going, but art historians and serious students of architecture and design will find it an invaluable source of factual information. W.V.E.

Airports for Jets. John E. Peterson. Chicago, American Society of Planning Officials. 86 pp illus. 6″ x 9″. $2.50

This booklet was based by the author, a US Airforce officer, on his master's thesis in city planning. It carries an authoritative treatment of civil turbojet transport aircraft up through the Boeing 707 Stratoliner, Convair 880, Douglas DC8 and DeHavilland Comet 4B.

There are chapters on airport and air travel trends, on airspace and control, characteristics of planes, aircraft noise, site design, protection of airport and community values, and airport location factors.

A brief bibliography completes this crisp and useful text. E.P.

The Art of Three-dimensional Design. Louis Wolchonok. New York, Harpers. 169 pp illus. 8½″ x 11″. $8.50

An industrious analysis and indication of 3D in 2D. These are visualizing exercises and graphic space-explorations resulting from motions of points, lines and planes with only the foci, loci and direction of intellection—there is no hint of individual communicative or evocative expression, no creative refinement or other meaning in these diagrams. Once departed from the simple elegance and inevitability of mathematics these indications are singularly unlovely.

Perhaps we should not expect more, but a better book would have omitted the major part of the laborious development here. The most useful sections analyze geometrical elements in clear and forthright drawings. To these might have been added a selection of photographs of art based upon these generating concepts. In between, perhaps, some of the naturalizing influence of the D'Arcy Thompson[1] approach to problems of growth.

The difference (and this criticism) could be illustrated by comparing the free-form variants (p. 57) with a few sculptures of Arp or Gabo, or the "mousetrap" jewelry designs (p. 73) with Henry Moore—it is the difference between the monstrous and the serene. A similar comparison of graphic significance on a 2D level could be made between the exquisitely sensitive and meaning-laden symbols of Rudolf Koch's "Book of Signs"[2] and these barren constructions of angles and whirling curves. The difference is *Art*—which is mistakenly included in the title of this book. E.P.

The Mute Stones Speak. Paul MacKendrick. New York, St Martin's Press, 1960. 352 pp illus. $7.50

For the architect interested in pre-Roman and Roman culture, art, architecture, engineering, literature, law and religion, this book is a must. Sub-titled, "The Story of Italian Archaeology," the book brings to life the forgotten cities of Italy from pre-historic times to the present. Much of this quality is due to the actual excavation reports used profusely throughout the book.

Beginning with the Etruscans and primitive Rome, the reports continue with new finds from Ostia, Minturnae, Cosa, Paestum and Alba Fucens. The exciting discovery of the Sanctuary of Fortuna at Praeneste, built during the age of Sulla, and brought to light by bombings in World War II, provides a fascinating chapter.

Not only are archeological finds presented in easy-to-understand language, but also scholarly speculation as to what still remains for the archeologist to discover tempt the reader. Controversies that have existed through the ages concerning city plans, house design and ethnic cultures are conveniently wrapped up to the satisfaction of the reader.

For those with an interest in the "how it is done" side of archeology the book presents in layman's language all of the techniques, old and new, that are used at excavation sites. The most recent, and one that intrigued this reviewer most, is the oblique aerial photograph that shows the outline of buildings long-forgotten and buried from man's sight. The method came into being accidently when aerial photographs were used so extensively during World War II, and when, upon examination of some, long-buried buildings appeared as geometrical mounds of earth.

Many of the photographs used in the book are poor in quality, but the whole effort makes for many exciting evenings of reading. N.C.B.



Food Service in Industry and Institutions. John W. Stokes, Management Consultant. Dubuque, Iowa, William C. Brown Company, 1960. 261 pp

Many architects employ the services of consultants when they encounter a planning problem involving dining and food preparation facilities. When a project is in the programming or preliminary design stage, however, it is very helpful for the architects to be informed concerning how food services operate and especially about the most recently developed equipment. Since labor costs are becoming of increasing importance in this field, profits may result from the use of relatively expensive equipment. Other cost cutting equipment discussed in this book include microwave cooking, automatic vending machines, and self-leveling devices which automatically bring dishes, etc, to counter height.

Much useful data for planning is given. Included are space needs for dining rooms and practical kitchen arrangements. Different methods of serving in hospitals, industrial plants, schools, and other institutions are analyzed. C.H.C.

[1] "On Growth and Form," D'Arcy Thompson, Cambridge, Cambridge University Press, 2 Vols., 1952. $18.50

[2] "Books of Signs," Rudolf Koch, New York, Dover reprint, 104 pp. $1.50

The Much-Maligned Curtain Wall

There has been a tendency lately, among critics of the architectural scene (who says there is a dearth of architectural criticism?) to decry the curtain wall, that glassy trademark of the 'fifties, as being the primary cause of monotonous facades and lazy design. In fact, I think I've occasionally slipped into that rut myself. But is it fair to blame an inanimate building material, or the industry which devised and manufactures it, rather than the architects who make use of it?

Of itself, the curtain wall is a beautiful device—a shimmering sheath of silver and glass. When seen in an isolated situation, perhaps standing shining and clean against a backdrop of dingy old buildings, it sings a strong, fresh song. I was in Atlanta yesterday, and as my plane taxied across the field I admired the new airport building (so sorely needed these many years)—a central tower in green glass and silver, surrounded by lower masses surfaced with another material. The building stands alone, and probably always will, so it will be spared the ruinous competition of too many shining neighbors.

In many small cities, where there may be as yet only one or two modern buildings, their curtain wall facades strike a pleasing contemporary note amid the dreary hodgepodge of buildings that accumulated during the past century or so. But as the city prospers and more such buildings are built, only to shine into each other's faces, that "pleasing contemporary note" will have become brassy and blaring—and because of its stridency the effect will be more strikingly monotonous than the dreariness which preceded it.

Unimaginative designers can commit the same sins no matter what materials they use. The only reason for monotony of design is monotony in the mind of the designer. It takes imagination and originality to avoid repetition and sterility. The fact that the basis of the curtain wall is a constantly repeating modular unit is not *of itself* to blame for monotony. The Japanese have for centuries built their houses on a rigid modular system, in constantly repeating materials, yet through the exercise of exquisite taste and judgement they have achieved variety and interest at all times. "Exquisite taste and judgement" should be possessed by all architects—but unfortunately any young fellow who likes to draw or has a yen for construction can study architecture and get a license.

I saw Pisa for the first time last summer. I must confess I didn't approach it with the holy awe that Louis Kahn did, but I looked forward to it eagerly and I was not disappointed. The lacy grace of the campanile particularly thrilled me. Here in this group of buildings was a lesson for the designers of today's modular panellized curtain-walled buildings. Here is a constantly-repeating motive, applied with little variation as an over-all pattern to three adjoining buildings (I am not including the blind arcades of the Campo Santo), yet there not only is no monotony, there is a joyous and contrasting ensemble. First of all, the buildings are different in mass and size—hence the contrast. Secondly, there is really a considerable variety in the dimensions of the apparently identical repeating arches, illustrating what Claude Bragdon called "The Law of Diversity in Monotony," or again, "The Law of Consonance: Repetition with Variation." I realize full well that a frequent variation would play hob with prefabricated modular units, yet it is not altogether impossible, and in any case the principle should be carefully studied by those faced with the problem of designing such a building.

An advertising agency man, who handles the account of a manufacturer of metal curtain wall components, asked me wistfully the other day if there wasn't considerable reaction against the curtain wall today. Did I think it was already on the way out? I told him that the reaction was so far only at the higher critical level, and that it didn't seem to have reached the average architect yet, yet alone the client. There are still hundreds of cities and towns across the land which can absorb hundreds of curtain wall buildings without suffering from glassy modularitis. Yet, I told him, the criticism is valid and it behooves the architects and manufacturers to think about ways and means to meet it. I hope I reassured him—I'm not so sure.

It's its "over-allness" that is the bad thing about the curtain wall—like a gigantic Scotch plaid, only without even the "diversity in monotony" one finds in a plaid. Great areas of repeating units must be broken up, or the units must be made larger. The facade of Sansovino's Library of St. Mark in Venice is 275 feet long, two stories high and treated with a series of identical arches. Yet the voids are large and the surfaces between are rich, so one does not think of monotony. The front of the Pitti Palace is 660 feet long without a break, yet again the constantly repeating windows are widely spaced and the surface is vigorous. It expresses great power, but not monotony.

The curtain wall isn't on the way out—it's economical, it's quickly erected, it's cleanable and it *can* be pleasing. But its use must be given more thought, more careful research and study, and the architect who is asked by his client to use it where it shouldn't be used—because of its proximity to other such buildings, perhaps—has got to be brave enough to tell his client it shouldn't be done and why, and show him something better.



BTRG

AIA Building Type Reference Guide (BTRG 9-2)

Industrial Buildings PART II

By Clinton H. Cowgill, FAIA, Head of the Department of Office Practice, The American Institute of Architects, with the collaboration of H. E. B. Anderson, Construction Editor of Plant Engineering.

(Part I appeared in the November issue)

Site planning

For no other type of building is site planning more essential. Generally some use, either present or future, or both, should be assigned to every part of the site.

First consider the approach to the building or group of buildings. Who will see the plant from this point of view? Will it inspire enthusiasm and improve morale in employees? Will visitors be favorably impressed? Will it serve as effective advertising as viewed by passers-by? It need not be a large area, but if skillfully planned, a forecourt may be a relatively inexpensive means of giving distinction to the over-all design.

Unenclosed work areas must be planned in relation to the building plan. This is also true for interior courts, and possibly for recreation areas and provision for expansion.

Parking areas should be as close to building entrances as possible and directly accessible to the highway. They should be concealed as much as possible. It is preferable to separate access roads to trucking areas from those to parking areas.

Employee Housing

One of the results of mass production is the concentration of many workers in a single plant. When the industrial plant is located in a large city, there may be adequate housing within a reasonable distance, and there may be more than one plant within a reasonable distance from such housing.

Another advantage of urban factories is that employees may not necessarily be segregated from other kinds of workers. When urban areas are zoned for industrial buildings, areas zoned for housing should if possible be located a reasonable distance from the plants of more than one company and from other kinds of employment sources.

When a new plant is to be located at a distance from present housing, consideration of worker housing cannot be avoided. The generally accepted solution—use of employee-owned automobiles—is too uneconomic for a permanent answer. It is true that it gives the employee the greatest choice of both employment and housing, but it often requires him to spend too much of his time and too large a proportion of his income for transportation. Employees who prefer this solution should be provided with parking space at the plant even though the area required seems excessive, and even though this use of their private cars clogs the highways and makes it necessary continuously to construct new highways of ever greater capacity.

A better solution is the "company town." This has been adopted more frequently abroad than in the United States. Employees and their trade union officials generally suspect (with some reason) that the "company" will use "company housing (like the "company store") to take unfair advantage of them. To avoid this criticism, an industrial community may be substituted for the "company town." Housing in such a development may eventually be largely owned by its occupants, and the cooperation of the union officials may be sought. The "company" need not finance the development, and should not control it. If possible it should serve more than one "company." Such a community should have its schools, cultural and recreation facilities, and local government.

If employees are not to be required to use private automobiles for their daily transportation to and from work, public transportation must be available to those living beyond a walking distance from the plant.

If suitable employee housing and community facilities are near the plant, recreation facilities may not be required in the plant area.

The housing problem should be considered when the site is being chosen, when the program is being established, and during the site planning and design of the project.

John Day of Albert C. Martin and Associates, Architects and Engineers, reports[1]:

"When you consider that a major industrial project may house five or six thousand people, you begin to see that we have to be concerned with how the project will affect the surrounding areas so far as traffic

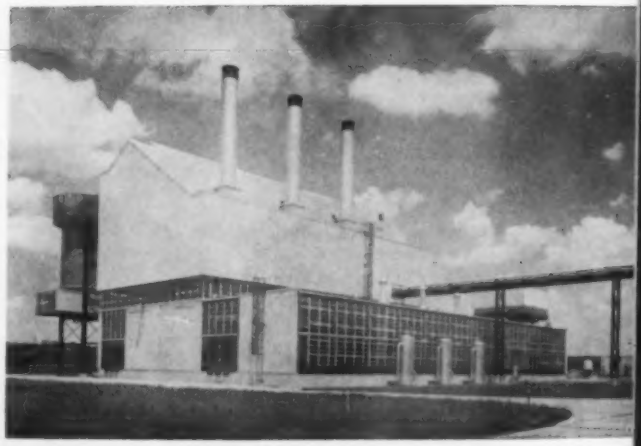
[1] OFFICE ORGANIZATION AND PROCEDURES FOR PRESENT-DAY PRACTICE, *Arch Rec 127*, 187-94, January 60



1

Chrysler Corporation's New Assembly Plant

St. Louis, Missouri



2



3



4

Albert Kahn Associated Architects & Engineers, Inc.

Located on a 245-acre tract, the main manufacturing building and six other buildings have a total floor space of more than 1.5 million sf. Plant site also includes a forty-six acre parking lot with car capacity + 4500.

Main assembly building alone measures 1500' x 720'. Adjacent to assembly building are power house and paint mix building. There are three other structures—two guard houses (one includes plant protection quarters) and a new-car check-out building. Auxiliary services provided include an industrial waste treatment system, oil tank farm, sub-station, and oxygen and acetylene building.

1 Chrysler Corporation, Plymouth Division assembly building. East elevation, precast concrete panels, pivoted aluminum sash, aluminum siding

2 Boiler house (South and West elevations) pre-cast concrete panels, pivoted aluminum sash, aluminum siding, extruded aluminum coping, overhead steel pipe trestle to main building

3 New-car check-out building (South and West elevations): exposed steel frame, porcelain enamel and aluminum sash panels, extruded aluminum coping, corrugated plastic windscreen

4 Oil and paint building (South and West elevations) note: covered overhead pipe bridge to main building, exposed steel frame, precast concrete panels, aluminum siding, extruded aluminum coping, fixed aluminum sash

PHOTOS BY ENGDAHL, HEDRICH-BLESSING

circulation and utility requirements are concerned. . . . In the process of developing major sites in the outskirt areas of the city, we have come across the problem of getting land rezoned—(and) we become involved in city planning. Most projects in new development areas require new subdivisions and street and utility improvements."

Factory Design

It is recognized that neither the architect nor his client may be a single individual, but it is assumed that one person will represent and serve as coordinator for the architectural firm and that one person (the one addressed in the following statements) will act for the manufacturing corporation.

Before your architect can plan your building, you must give him as much information about your present plant and your needs as possible. Perhaps the architect should talk directly with managers and foremen. If you have an industrial engineer, he and your architect should cooperate from the beginning. Planning might start with an ideal routing diagram, drawn to scale. Various modifications may be considered which can be accommodated to building forms. Designs should be compared for efficiency and cost of construction. A pleasant orientation and outlook should be secured for cafeteria and recreation areas. Spaces for needed airconditioning and other mechanical equipment should be included.

When a schematic design has been approved, the plan of each floor should be studied by your architect at larger scale, and sections and elevations should be drawn. At this stage the structure must be determined and each system of plumbing, heating, airconditioning and electric wiring worked out. If the design is based upon a planning module, it will be advantageous to all concerned. Outline specifications should accompany the design. If there is doubt at this stage about the relation of the construction cost to the budget, it would be wise to order a detailed estimate.

Even though one person may be designated to act for the client, he may well be the spokesman for a group. The regular position held by this person and the positions held by other members of the group will vary for different projects. In many cases, the Plant Engineer will be the logical choice for spokesman. The group should generally include one or more representatives of top management, perhaps one or more representatives of the corporation's headquarters engineering office (if any), and heads of important departments concerned with operations and maintenance. The architect may benefit by direct contact with foremen and other workmen, but his instructions should be given by the designated spokesman representing the client.

Working Drawings and Specifications

With assurance concerning cost, you may want your architect to proceed with all possible speed to get the building under way. Normally, from several months to a year should be allowed for the preparation of the construction documents, but if desired the construction could be started before working drawings and specifications have been completed. A separate lump sum contract possibly could be let for excavation and foundations, or this part of the project could be let on a cost-plus-fee basis.

If all questions have been settled during the design stages, the preparation of construction documents will be facilitated by a policy of non-interference by the owner or his representatives. On the other hand, if questions arise, they should be answered promptly. Frequent reports to the owner should be made by the architect.

The "architectural set" of working drawings should indicate the materials and structural elements needed to produce the building illustrated by the design drawings. If available, materials and building components should be chosen which fit a modular grid (a multiple of four inches), and dimensions should be related to this simple modular pattern.

The "structural set" of working drawings is coordinated with the "architectural set", and the "mechanical sets" (heating, airconditioning, electrical and plumbing) are coordinated with each other and with both the "architectural sets" and the "structural set." Specifications are furnished for all branches of the work. The working drawings and specifications are used by bidders for estimating, by the architect and engineers as a guide for the administration of construction, and by contractors as detailed instructions to their suppliers, sub-contractors and workmen.

Site Engineering

When an industrial plant occupies a large site, engineering problems may present themselves both in the early stages of design and later. Consideration must be given to the topography of land adjacent to the site, to access from highway, railway or other means of transportation, and to the availability and adequacy of water, gas, steam and sewer lines. If a sprinkler system will be required, the placing of an elevated tank should be considered at the outset; and if power is to be generated, the placing and design of the power plant must have early consideration. In determining final grades, original grades should be disturbed as little as possible. Grades should be steep enough for drainage.

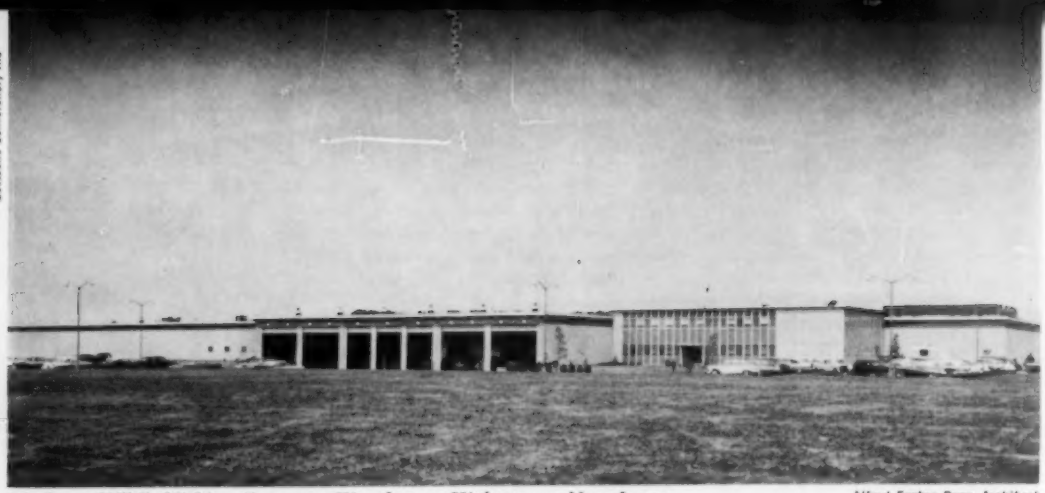
Many plant engineers[2] have reported difficulties with drainage. The architect should ask for and receive complete information concerning the site. The natural surface drainage should be maintained if possible. Buildings on swampy ground may require waterproofing of floor on ground and underfloor ducts.

For heavy machines, special foundations may be indicated. Rock soundings or borings and soil analysis may prevent future trouble.

Administration of Construction

When the working drawings and specifications are complete (or before), it may be necessary to carry-on some of the manufacturing operations while parts of the building are being constructed. But doing so inevitably results in increased costs for both production and construction. However, when there is no alternative it may be best to let a construction contract on the cost-

[2] *Report of results of Questionnaire Survey* to Determine Problems of Plant Engineers with Recently Constructed Buildings and to Determine the Status of the Relationship between Plant Engineer and Architect-Engineers, by John E. Lockhardt, Co-Chairman, Special Activities Committee, American Institute of Plant Engineers, and Manager, Plant Engineering, General Electric Company, Evendale, Ohio



Gottscho-Schleisner, Inc

McGraw Hill Publishing Company Warehouse, Hightstown, New Jersey — Alfred Easton Poor, Architect

plus-fee basis or do the work with company employees. In the latter case, a capable construction superintendent should be secured to work under the direction of the architect.

When the occupation and use of the various parts of the plant can await completion of the construction, it is advantageous to let the construction contract to the low bidder among carefully selected contractors. With complete construction documents prepared by the architect (who must be unbiased) the client is assured of the greatest value for the lowest cost, and he knows how much he is paying for the construction and for professional service. When the functions of the architect are combined with those of the builder, it may be difficult to learn how much is paid for professional service.

One of the first duties of the architect, after construction contracts have been let, is to establish standards for the contractor. Even with exact specifications, the contractor may be uncertain as to the acceptability of questionable materials and workmanship. For the contractor to set up his own standards obviously results in conflicts of interest causing embarrassment to the contractor and possible loss to the owner. Once the architect has established standards, they are usually enforced by a project inspector under the direction of the architect.

The producers of many building materials and appliances and some subcontractors make drawings for use in their own shops. These shop drawings are required for most non-standard building components. While these should be checked first by the contractors involved, they should also be checked by the architect to make sure that his drawings have been correctly understood and followed.

Another duty of the architect soon after work has started is the consideration of the contractor's proposed *schedule of progress*, indicating when the various parts of the work will be started and completed and when certain materials and appliances are to be delivered. At the same time, the architect should consider the contractor's *schedule of values*, which indicates the value of materials in place (cost of labor plus materials plus overhead plus profit) of each of the various parts of the work. He must see that the allowance for overhead and profit, etc, is not significantly greater for those parts of the work which are done in the early stages than for those which come later. The *schedule of values* is commonly the basis for progress payments made to the contractor. These payments conform to the amounts certified by the architect as due and payable.

It is the ideal of every architect to design a building and present such complete working drawings and specifications for it that no changes need be made during construction. This may not be possible because:

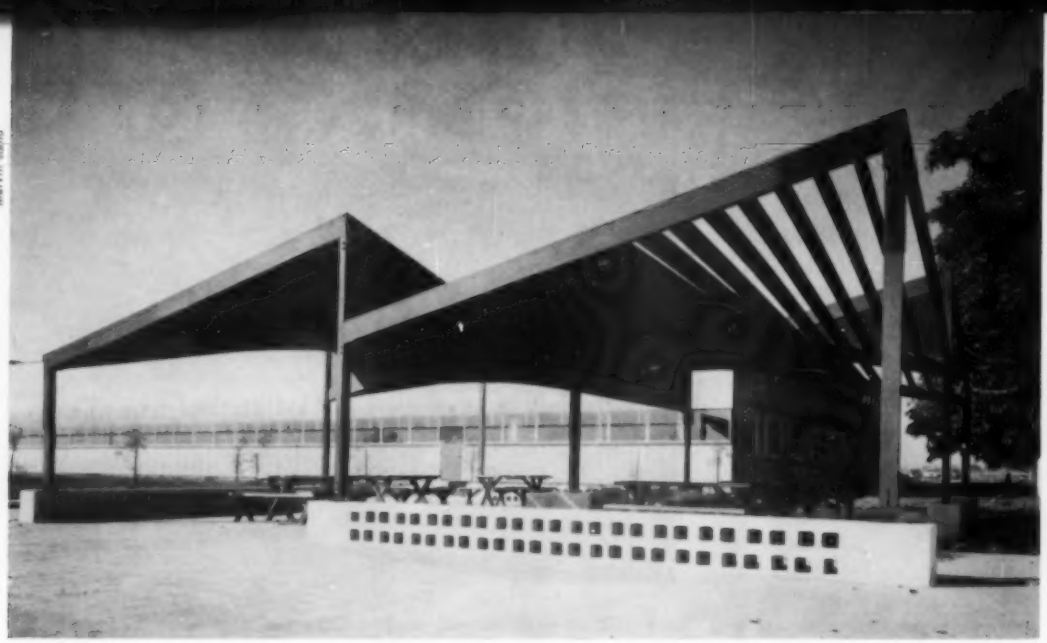
- precise requirements of building may change
- relative costs of certain materials may change
- unforeseen conditions may come to light
- client's budget may be altered

For whatever reason a change may be desired, it is the duty of the architect to describe the proposed change adequately and to secure from the contractor his estimate of the difference in the construction cost resulting from the change, supported by a detailed breakdown of costs. With the owner's approval, the architect issues the *change order*.

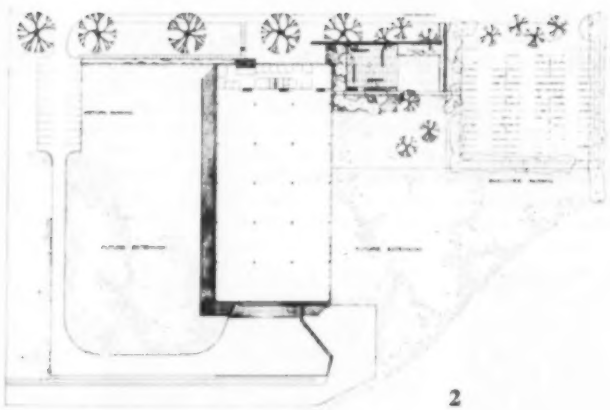
When the building is substantially completed, the architect and project inspector examine it thoroughly in the presence of the contractor and his superintendent, and make a list of needed corrections. When all corrections have been made, this same group (possibly with the addition of the owner) re-examines the building and if all known defects have been corrected, the architect issues the Final Certificate. A similar inspection may be made at the expiration of one year.

It is obvious that to perform many of these duties, an architect must be free from bias and pressure. This is impossible unless he is engaged directly by the owner, his client. He must also possess skill in design and knowledge of construction which can come only from years of education and experience. To carry the responsibilities, which accompany his duties, an architect must have judgment based upon knowledge and a spirit of fairness.

Everyone knows that an architect cannot himself perform all of the tasks which go with the design and administration of the construction of building projects, and that for each of many projects many professional collaborators are needed. It is essential for efficient building, however, that one individual be designated as the coordinator of all professional services. Since most projects must start with a program and design, and since the architect is trained to serve in those capacities, he is the logical choice.


Marvin Rand

1



2

Torrington Manufacturing Company

Van Nuys, California


Marvin Rand

3

Marcel Breuer & Associated Architects

1 Employees' luncheon pergola

2 Floor plan with 100% expansion possibilities, east and west

3 Aluminum wall can be moved in units in case of expansion. Note: Sun filters exterior view


Marvin Rand

4



Hube Henry, Hedrich-Blessing

Chevrolet Supply Depot

Albert Kahn Associated Architects & Engineers, Inc

General Motors Corporation,

Flint, Michigan

► Largest of the redistribution centers for replacement parts (in excess of 1,000,000 sf) the Chevrolet Major Supply Depot was recently completed at Flint, Michigan. It consists of a major supply depot, office building, boiler house, paint mix and pump houses, guard houses and other miscellaneous allied functional units.

All elements within the complex of buildings have a common design denominator consisting of coordinated sash, door and sill heights. This consistency, together with attention paid to human scale and landscaping, has brought the plan into a better relationship with nearby residential neighborhoods.

Construction and materials

The supply depot is a steel frame structure, with 50'x50' bays, and is one-story in height except for a small two-story portion. Since no major overhead loads such as cranes or conveyors were anticipated, use of an economical structural system consisting of light steel trusses was feasible.

Exterior walls are of face brick backed up with cinder block to a sill height of twelve feet. Above, the wall consists of a stone sill with aluminum sash and siding to the roof eaves. Extruded aluminum facias are used throughout. Interior masonry walls are of block and/or glazed hollow tile in areas housing employees' facilities, etc, with metal sash partitions used to form various individual administrative offices located on the depot floor. Ceilings in these areas are of suspended plaster or acoustic tile. Floors, generally, are of concrete with ¾" trap rock finish throughout.

Roof construction is of corrugated metal decking with insulated fill. All monitors are fitted with galvanized steel sash, hinged at the bottom, motor operated, and specially designed to open automatically by means of fusible link controls in case of fire.

Office building is of two-story steel and concrete construction, 120 feet wide by 384 feet long, and is completely airconditioned—fan rooms on roof. Office building has

Photo at left is a view of office south wall and main entrance. Curtain wall consists of off-white porcelain enamel panels and heat absorbing ¼" plate glass in aluminum frames with provision for expansion at each vertical. Structural columns are faced with trapezoidal extruded aluminum covers to envelop vertical shadow and to permit expression of the thin flanking vertical mullions. Curtain wall construction rests on narrow extruded aluminum sub-sill at concrete grade wall. Top of curtain wall terminates beneath protruding extruded aluminum facia. Cantilevered canopy over main entrance doors projects beneath pedestrian shelter and has an aluminum facia.

slab brick end walls with curtain walls between consisting of an extruded aluminum grid frame featuring heat absorbing glass and insulated porcelain enameled panels. Extruded aluminum gravel stops and facia are used for the coping throughout.

Partitions in the office are of metal sash, with exposed masonry block, glazed tile, or plaster wall finishes enclosing permanent areas such as the main lobby, stairs, toilet facilities, or rooms housing mechanical equipment. Ceilings, generally, are of metal acoustic tile.

Facilities for employees include a main central lunch room and locker room, with a central kitchen area serving both the depot and the office building. Access to these facilities from the parking lot is provided by means of an underground tunnel and stairs, eliminating pedestrian traffic across major plant thoroughfares.

The boiler house, attached to the rear corner of the supply depot, is a one-story structure, approximately 84′ x 70′, with a partial basement below the ground or operating floor which is situated about 3-½′ lower than elevation of the first floor of main building. Elevated platforms are located between the boilers and an elevated fan platform is provided below stacks. Boiler room area is separated from main building by a switchgear room, compressor room, office, toilet and locker room, all of which are on the operating level. Construction: steel frame with concrete floor slabs, concrete basement, exterior masonry walls, insulated aluminum siding, aluminum sash. Roof: Metal decking and insulated fill with aluminum flashings.

Light and power

A total of 7,000 KVA connected transformer capacity provides the light and power for the entire group of buildings on the property. Dry type transformers are provided for each lighting zone, approx one for every six bays (15,000 sf). Lighting control is by circuit breaker panels mounted in the column web below each transformer, and transformer primary connections are taken from the bus duct. All utility motors are connected to the bus duct system with starters, thermostats and other controls mounted on the columns.

Entire electrical system is designed to eliminate any obstructions below the truss line of the warehouse to permit free movement of materials by an automatic floor conveyor system.

Lighting throughout the office building is of the recessed fluorescent type with low brightness glass panel enclosures; light intensity in both offices and open areas approach fifty footcandles. An underfloor duct system is installed for low tension and telephone wiring. A separate and complete electrical system is required for the IBM room to insure the exacting voltage regulation necessary for the operation of these machines. Outside floodlights, supported on the roof parapet around the perimeter of the depot, provide adequate protection at night. Parking areas are lighted by means of fixtures mounted on aluminum poles which have curved branch arms. Reflectors are supported on Thompson hangers for ease of maintenance.

Warehouse heating and ventilating

A general pattern of vertical projection unit heaters is used to heat the warehouse. Additional inverted and horizontal blower type units cover the truck and railroad doors around the perimeter of the building as well as the shipping and receiving docks at either end. Six winter supply units delivering 25,000 sfm each of outside air are employed to make up for the owner's industrial exhaust requirements. Strategically located in the unit heater pattern, these units serve to heat as well as supply air to the building. Summer supply units and winter units may be operated with the steam valves closed. These units introduce air into the building, and monitors with operable sash above the main roof discharge air back to the atmosphere.

A high pressure (100#) steam main runs from the boiler house down through the center of the building and serves two pressure reducing stations which reduce the steam pressure to 30# to further serve all the winter supply units and unit heaters within the warehouse. The condensate from this equipment is collected into gravity return lines which extend to two main pumping stations.

The machine room adjacent to lunch and locker room also houses necessary equipment to completely aircondition and ventilate the lunch room. Equipment consists of built-up fan units delivering a mixture of fresh and recirculated air through a system of overhead ductwork



Hube Henry, Hedrich-Blessing

View, along east wall of main building. Nature of building occupancy led to a relatively high masonry wall topped by a stone sill and a continuous band of operable aluminum sash. To the left are two ground storage tanks between which is a pump house.

and ceiling diffusers. Cooling by use of direct expansion cooling coils, reciprocating compressors and evaporative condensor. The system employs pneumatic controls which automatically regulate the equipment and steam valves on the reheat coils to obtain the desired room temperature.

A forced hot water heating system serving a series of fin tube radiators extending from column to column around the perimeter of the building compensates for exterior heat loss. Heat exchangers and pumps serving the system are located in a machine room on the first floor of the office. The hot water heating system is controlled by an outdoor bulb which actuates an electronic compensator used to modulate the steam valve serving the heat exchanger to automatically provide a specific water temperature corresponding to the outdoor air temperature. Additional blower type cabinet heaters "spot" heat the vestibule entrances.

Airconditioning

The office building is completely airconditioned and ventilated through a system of ductwork located above the suspended ceilings and terminating in a series of ceiling and side wall diffusers, the location of which was dictated by design requirements.

The IBM machine room, located on the first floor, has a separate airconditioning and ventilating system. The fan room, located between the IBM area and the machine room, houses two fan units and the reciprocating compressors to serve these units. The refrigeration compressors must operate twenty-four hours a day, every day throughout the year. This necessitated the "winterizing" of the cooling tower in order to maintain its operation throughout the winter months. Winterizing consisted in placing a steam grid in the pan of the tower and a diverter valve in the condenser water return line to the cooling tower. Bulbs located in the pan automatically control the temperature of the water delivered to the compressors by starting and stopping the cooling tower fans, controlling the valve on the steam line serving the grid, and by diverting the water from the spray section to the pan section. The bulbs exercising this control are actuated as a result of the outdoor air temperature which affects the water lying in the pan.

Fire protection system

The fire protection system consists of an exterior fire loop encircling the supply depot with extensions for water to yard hydrants and automatic sprinkler risers.

The primary water supply consists of a valved connection to the two 500,000-gallon ground storage tanks for fire pump service and two discharge connections from the high capacity fire pumps to the underground fire loop. A secondary water supply of 150,000 gallons is reserved in the lower portion of the elevated water storage tank.

The interior fire protection system for the warehouse consists of complete wet pipe automatic sprinkler protection throughout except for the fan rooms, toilet rooms, locker rooms and transformer rooms; the system is generally sized for ordinary hazard occupancy. Roof hose connections housed in equipment boxes are strategically located to provide complete roof protection.

Complete automatic pumping equipment is installed in the domestic water and fire pump house for supplying water under pressure to the various systems.

Materials handling

The maintenance of a continuous flow of materials into and out of the plant was a primary consideration in the design of the depot. To provide necessary rail and dock facilities, both sides of this 1,000′ long building are devoted to enclosed truck and rail docks. Material is received from suppliers at



Hube Henry, Hedrich-Blessing

West guard house and truck shelter. Guard house, of aluminum, ¼" plate glass and off-white insulated porcelain enamel panels, rests on raised concrete pad beneath truck shelter supported on steel columns, painted gray. Truck shelter has exposed roof framing, exposed corrugated metal deck and aluminum facia to match facia of guard house.

one of the twelve truck receiving spots or fourteen carload spots where the material is unloaded for distribution to the storage area. The general flow of material is in a direction from the receiving area on the west side of the building to storage, and then is moved further in the same direction from storage to any of the sixteen truck and sixteen rail shipping spots on the same side of the building.

To move the large volume of material from the receiving area to the storage and shipping area, 8,739 ft. of floor conveyor was installed. There are four main conveyor loops which traverse the warehouse, three of which are in the bulk storage area with one loop circulating in the bin storage area.

The unique and unusual feature of the floor conveyor system is the electronic dial control mounted on the front of the floor conveyor track to permit the automatic dispatching of the truck from any point it is placed on the conveyor. The electronic control switch will direct the truck to any of the four conveyor loops onto which the truck is to circulate or any of thirteen spurs or sidings. Empty trucks and racks are returned to the receiving dock where they automatically switch off from each of the main conveyor loops to spurs where they are readily available for the use of the material handler on the receiving docks. Similar spurs have been installed on the shipping docks so that after the material has been selected for shipment to many of the main warehouse locations, the conveyor truck can be directed to the particular conveyor spur adjacent to the railroad car in which the material is to be shipped from the warehouse by merely directing the dial on the front of the truck. These conveyor trucks will move through the shortest path to the designated spur and if all spots are filled up so that the additional truck cannot be accepted, the truck will then circulate automatically on the conveyor loop until a truck has been removed from the spur permitting the truck circulating on the conveyor loop access to the spur. The introduction of automatic transfer of trucks from one loop to the other and the ability to dispatch trucks on this conveyor system so that they will automatically switch out at a definite spur or siding, or continue to circulate any selected loop, is the most revolutionary development since floor conveyors were first used in warehouse operations in the early twenties.

The conveyor system will not supplant all other types of material handling equipment used in past operations. Continued use will be made of standard fork trucks and narrow aisle trucks, which still hold a definite place in the material handling operation and provide valuable supplemental equipment for the new conveyor system.

Material storage facilities consist of air rights racks and steel wire pallet containers of the latest design. Material received and placed in these racks and containers is immediately moved from the receiving dock by the floor conveyors and stacked in the storage area by fork trucks without further manual material handling.

In any large warehouse operation, communications are a very important item and in keeping with the automatic dispatch of incoming material on trucks, an automatic four by seven pneumatic tube system is installed for the dispatch of receiving slips and shipping orders throughout the warehouse and the office building. A two-way audio communication system is also provided in the warehouse and office building. ◄

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Research center. Shelter capacity 7000, landscaped courts and pools. $758. mil., $20/sf. 5′ module.

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crafts, and computers. Long range site plan. Bays 40′ x 60′. $35 mil. Size limited by capacity of highways serving site and demands from other plants; also utilities.

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Value as advertising; landscaped courts.

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Building 5 acres in San Jose, California; 210 acre site. Metal sculpture and ceramic murals.

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SEASIDE PLANT FOR PRECISION ELECTRONIC COMPONENTS; Pereira & Luckman; *Arch. Rec.* 125:156-7, January 1959.
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TEXAS INSTRUMENTS LABORATORY AND PLANT; Ford, Colley and Tamminga; *Prog. Arch.* 40:172-7, September 1959.

TEXAS INSTRUMENTS, INC., DALLAS; O'Neil Ford & Assoc.; Richard S. Colley, A. B. Swank; Small electronic components; *Factory,* 117:76, 143, May 1959.
Flexibility; three-story, ground floor for offices, top for manufacturing; second floor for utilities and for space frame with 63′ x 63′ bays. Cafeteria, 200 seat auditorium with sloping floor and high ceiling.

USINE ET BUREAU DE L'IBM, Rochester, Minnesota; E. Saarinen & Assoc.; *Arch. d'Auj.* 30:23-5, September 1959.

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300,000 sf., 17 cranes, fork-lift. Future foundry and forge, double present plant. Drills, variety of sizes. Office wing 3900 sf, laboratories, cafeteria, first aid, garage, locker and wash-room, parking. Outside storage of large products in process. Small maintenance dept. and tool room.

CUTLER-HAMMER, INC., LINCOLN, ILLINOIS; Austin Co.; *Factory* 117:76, 88-91, 143, May 1959.
Low voltage distribution apparatus plant, expandable, 80′ craneway, fork-lift trucks. Walls and ceilings with acoustic Tectum panels, tilt-up slabs to sills, corrugated aluminum panels, piles 35′ deep. Plating dept.; polyester fiberglass hoods and exhaust ducts, polyvinyl-chloride pipe and fittings. Air exhaust up to 250 cfm at sources totaling 100,000 cfm. Painting shop centrally located. High temperature hot water heating, 305° F, twin generators produce 25 mil. BTU/hr; emergency 125 KV generator; materials by truck and rail. Assembly airconditioned, cartons in mezzanine.

SPLIT BALLBEARING, MINIATURE PRECISION BEARINGS, INC., Lebanon, New Hampshire; Carl M. Koelb & Assoc., *Factory* 117:76, 104-7, 143, May 1959.

SQUARE D COMPANY; Glendale, Wisconsin; Grassold, Johnson & Assoc.; *Factory* 117:76, 108-11, 143, May 1959.
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DELICATELY SCREENED FACTORY; PHARMACEUTICAL PLANT IN CALIFORNIA; E.

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Stuart Company, Pharmaceuticals. Cost $3 mil.; 5.2 acres, building $1,855,000, $23/sf. Concrete screen 400′ long, 2-story atrium, production on lower floor.

NEW DIMENSION IN INDUSTRIAL DEVELOPMENT, South San Francisco, California; *Arch & Eng.* 214:3, September 1958.

Stuart Company; part of an industrial development by Utah Construction Company.

SPLENDOR IN THE FACTORY, Stuart Company, Pasadena; E. D. Stone; *Arch. Rec.* 123:161-8 April 1958.

Plaster walls with splash panels, vinyl floors (some skid-proof), airconditioned, atrium with adjacent swimming pool; planting outside and in; dust exhausted at source.

THE STUART COMPANY, PASADENA, CALIFORNIA; Edward D. Stone; pharmaceuticals. *Factory* 117:76, May 1959. In busy commercial area, 5½ acres, facing 4-lane highway, railway at rear. Recreation patio with swimming pool for employees and families off hours. Air, water, steam, elec. and vacuum lines, airconditioned. Materials cleared by lot, weighed, blended, granulated, dried, screened, compounded, formed, coated, bottled, and packed. Inspection at each step. Double capacity from rear expansion.

Printing

COMPLETE FACILITIES FOR PRINTING PLANT ON OUTSKIRTS OF A CITY; Wm. Feather Company, Cleveland; Dalton-Dalton Assoc.; *Arch. Rec.* 125:160-1, January 1959.

The William Feather Company designs and manufactures catalogs, etc. Flow (1) art department, (2) composition, (3) photoengraving, (4) stone area, (5) presses, (6) binding, (7) shipping. North light.

GREETING CARD FACTORY ON A FORSAKEN SITE; Hallmark, Kansas City, Missouri; W. Becket & Assoc.; *Arch. Rec.* 125:151-3, January 1959.

Site slopes 70 feet. 8-story building—gravity flow, loading docks for each level, parking on roof.

Tobacco

ROYAL TOBACCO FACTORY; largest early industrial buildings 1770. Remodelled by R. Taylor; *Arch. Rev.* 126:267-8, November 1959.
Historical account.

CAMPUS SETTING FOR RESEARCH; Philip Morris Research Center; U. Franzen; *Arch. Rec.* 126:211-16, October 1959. Design a corporate image. $3 mil.; 3 major buildings on 65 acres near Richmond, Virginia.

MANUFACTURE DE TABACS A MEDELLIN; J. Sierra & N. Rodrignez; *Arch. d'Auj.* 29:90, October 1958.

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BOX MANUFACTURING PLANT COMBINED WITH GENERAL OFFICES; Ginocchio, Cromwell & Assoc.; *Arch. Rec.* 125: 164-5, January 1959.

Walls of face brick and aluminum siding; partitions wood frame with plywood or gypsum board.

CAMPUS SETTING FOR RESEARCH; Philip Morris Research Center; U. Franzen; *Arch. Rec.* 126:211-16 0 '59.

COOPER TABOR FACTORY; seed processing building and warehouse; Witham, Essex; Chamberlin, Powell & Bon; *RIBAJ* s3 v 66:16-21, November 1958.

CHAS. BRUNNING COMPANY, INC.; Mt. Prospect, Illinois; A. Epstein & Sons, Inc.; *Factory* 117-76, 80-3, 143, May 1959.

12 miles from Chicago, expandable.

1 copying machines—fabricate subassemblies, 3-drag lines.
2 sensitized papers, 27′ ceiling, 1000 lb. rolls of paper by rail, coated and finished, small rolls and sheets.
3 stocking engineering supplies
4 administration for national organization in separate but connected building, patio. Visits from customers and distributers.
5 shipping.
6 wash rooms.
7 cafeteria.

EDIFICIO PROGETTATO PER LA SOCIETA ELETTRICA, Lenkurt; F. L. Wright; *Arch't'ra.* 5:474-9, November 1959.

FACTORY BUILT OF ITS OWN PREFABRICATED PARTS; C. M. Goodman Assoc.; *Prog. Arch.* 38:124-7, November 1957.

FACTORY EXTENSIONS AT DUXFORD; O. Arup and partners; sales and display block; *Arch. Rev.* 126:254-60, November 1959.

Laminates. Sales block of wood construction, others concrete and brick glass and metal.

FACTORY IN NEW YORK; U. Franzen; *Arch. Rev.* 126:57-8 Jl '59.

FRESH NEW CONCEPT FOR GARMENT MANUFACTURING PLANT AND OFFICE BUILDING; U. Franzen; *Arch. Rec.* 125:197-202, February 1959.

Barkin, Lenn & Company, Long Island City, New York, Ladies' Coats.

Architect advised on location, material handling, automation, storage facilities, flow lines, color, furniture, fixtures, and brochures. Storage space cut by ⅓ by use of pallets and forklift trucks to place them on shelves up to 18′ high. Overall saving of 50% of space and 80% of time.

KAISER ALUMINUM & CHEMICAL COMPANY, Ravenswood, West Virginia; Kaiser Engineers; *Factory* 117:76, 96-9, 143, May 1959.

Aluminum reduction and fabrication. Cost $200 mil., 102 acres under roof (4,443,000 sf), capacity/yr. 45000 tons primary and 169,500 tons of sheet plate and foil. Cranes.

LA NUOVA FABBRICA I.C.O. AD IVREA; L. Figini and G. Pollini; *Arch't'ra* 5:390-5, October 1959.

MIRACLE IN WATERVILLE; Prog. Arch. 39:138-42, June 1958.

PAPERMILL AT NORTHFLEET; Farmer & Dark; *Arch. Rev.* 122:300-9, November 1957.

Tissue mill pre-stressed concrete, 300 lb. live load. Roofs of corrugated aluminum with 1″ cork vapor barrier insulation, 3 layers of felt and granite chips. Office block on 3′-4″ modular grid.

Research laboratory same, span 40′; transport department. Power plant, water tower, 143′ high, with offices in supporting frame.

NICE BALL BEARING COMPANY DIVISION; Channing Corp., Kulpsville, Pa.; Carroll, Grisdale & Van Alen; *Arch. Rec.* 127No7:171-4 Jn '60.

PIONEER SAWS DIV. OUTBOARD MARINE CORP., Waukeegan, Ill.; Ralph Stoelzel; *Arch. Rec.* 127No7:168-70 Jn '60.

SIMPLE GEOMETRY FOR A DANISH CYLINDER BORING WORKS; A. Jacobsen; *Arch. Rec.* 125:162-3, January 1959.
Carl Christinson Motor Works, Aalborg, Denmark, branch plant. Advertising value from highway. Reinforced concrete structure with brick walls, steel windows, skylights. For night illumination, fluorescent lights on horizontal window mullions.

TWO FACTORY PROJECTS; C. Ellwood Assoc.; *Arts & Arch.* 76:20-1, March 1959.
For rental.

The Need for a Sense of Proportion

Product Design

by **Austin R. Baer,** *Head, Department of Product Design, School of Design, North Carolina State College, Raleigh, N. C.*

Robert F. Arey, AIA, *deserves major credit for the conception and organization of the successful AIA South Atlantic District Regional Conference, May 12-14, 1960, Winston-Salem, N. C. Mr Arey was the General Chairman for the conference which shunned plenary speechmaking sessions in favor of working seminars ranging over a wide area of interests: Ceramics, psychological aspects of space and color, marketing concepts, landscaping, specifications, religious art and architecture. Excerpts from two of these seminars, that on Product Design, and that on Prestressed Concrete in the Planned Structure, are printed here.*

► The responsible product designer is described as an engineer-artist committed to the implementation of technological progress in his work, in the most suitable esthetic form. Because of this commitment to change, as science provides him with new tools, he differs from the artist in the permanence of his contribution as an art form. He has no right to the expression of a personal esthetic if it intrudes on the functional qualities of his work. He creates not with the idea that his products will have a lasting beauty characteristic of painting, sculpture, or architecture, but with the certain knowledge that his work is predominantly a stopgap solution to a technical problem as exemplified by our kitchen and bathroom appliances, laundry equipment, etc. While exceptions such as furniture, tableware, and other accessories provide a justifiable media for predominantly artistic talent, most of his output is concerned with products which hopefully will be outmoded by new and better ways of solving the problems of human need, and which will leave "visual room" for the proper contribution of the artist.

This is not entirely true of the architect. While the architect should be concerned with progress in the same measure, the very materials with which he works, together with the economics of his calling, imply a permanence to his designs which is measured on a different time scale. Buildings are not replaced as quickly as washing machines, and a bad building creates an intrusion into a communal complex of design sensitivities far more than a bad can opener.

If the desires of the consumer can be reflected by the bulk of propaganda, both good and bad, that clamor for his purchasing power, it must be conceded that it is not the design of a building, but rather its furnishings and its gadgets that sell the bulk of American construction. The paradox is apparent. Articles and devices of transient value are easier to sell to the public than is the more lasting consideration of the structure that houses them, in contrast to the dictates of good sense. And all too often the architect himself falls into the trap of selling automatic kitchens for the appliance dealers instead of responsible design for himself and his community Whether the fault lies with the available talents within the profession (which none of us would like to believe) or whether the profession, as a group, has failed to educate the public on the fundamental principles of better buildings, only the architects can answer. Part of the problem lies in the unwillingness of the architect to concern himself with the details—which details, incidentally, so often "wag the dog".

Wherever the cause lies, its results are obvious in any community. One must look inside the building to find distinction and character and the picture is temporary and superficial. ◄

PRESTRESSED CONCRETE IN THE PLANNED STRUCTURE

by **Ross H. Bryan,** *Consulting Engineer*

► The use of prestressed concrete in the planned structure has been somewhat more limited than the prestressed concrete industry would like to admit. The great majority of prestressed concrete structures have not had the benefit of architectural planning. They have been built as the result of competitive bids on alternate designs furnished principally by the fabricators or their consultants.

This method places prestressed concrete at a disadvantage. It is used in place of other materials without much thought being given the details of overhangs, window openings, lintels and utilities. It has been necessary for the prestressed concrete fabricator to show a savings over other materials before his product will be used. This rather rigid requirement does not always take into account the less apparent benefits of durability, minimum maintenance and lower insurance rates.

In many areas the majority of prestressed concrete structures are built for clients who do not retain an architect except on an advisory basis, if at all. The structures are built by development companies, contractors and owners of small commercial and industrial businesses.

The engineering on these structures has been generally good, though slanted toward the convenience of the fabricator. This has led to the construction of many buildings having little or no esthetic appeal, to structures in which movement occurs under temperature and volumetric changes, and to the use of members having excessive camber. The majority of these are of post and lintel or of slab and bearing wall construction. Little thought is given to continuity, rigid connections or camber control.

To take its place in the family of building materials, prestressed concrete must eventually be integrated into all structures with rigid and continuous connections. These furnish stability to the structure and decrease the size of the framing members. The advantages of continuous rigid frame construction must not be abandoned by the construction industry, by consulting engineers, or by architects in order to use a new building material.

Prestressed concrete structures can have rigidity. They can be designed for continuous and rigid frame action, with members having low or no camber. The connections may be difficult and somewhat expensive but their cost is usually offset by a reduction in the size of framing members. It is more time consuming to work out the details of this type of framing. The product may require closer supervision in fabrication. For these reasons, neither the fabricator nor his engineer is likely to use this type of framing unless the owner, the architect or structural stability requires it.

The use of haunches to support beams is objectionable to most architects and also to owners. This is a simple, and therefore common, type of beam to column connection. Adequate connections can be made without the use of haunches or brackets if proper consideration is given to the details. For multistory work, shear keys in both the ends of beams and the sides of columns, cantilever and suspended span construction, and rigid framed post tensioned types of connections can all be used to accomplish a rigid, attractive beam to column connection without the use of haunches or brackets. Many structures have been built using all the above types of connections but this is not general practice in the industry.

It might be said that prestressed concrete has advanced to its present state in spite of the architect, rather than because of him. Prestressed concrete has posed a multitude of problems to the average architect. The engineers who work for or consult with the architectural profession are not familiar with prestressed concrete, and they often times influence the architect to use other materials with which they are more familiar. In many cases, there is only one source of supply for prestressed concrete products and the architect is forced to use the product without benefit of competitive bids.

Architects are reluctant to use a new product under these conditions. That these conditions are gradually beginning to change is apparent by the number of prestressed concrete structures that are now coming out of some of the major architectural offices, with the benefit of unbiased and independent structural and architectural study.

With the structural engineer and the architect working together to create a product which satisfies esthetic and structural requirements, and which can be produced economically, future development of prestressed concrete is assured. Its growth will be directed according to the combined requirements of structural integrity, esthetic considerations and plant economy.

The development of prestressed concrete is now at a stage where the participation of the architectural profession is essential if a truly integrated structural product is to be the result. The architect has recognized that prestressed concrete has a place in the family of structural materials. It is his responsibility to participate in the development of this material for the benefit of his present and future clients. His engineers, whether they be staff or consultants, must become familiar with the use of prestressed concrete and participate in its design. If this responsibility is accepted, the prestressed concrete structure can be made as sophisticated as the situation may require. ◄

New Performance Protection for Unitary Airconditioning Equipment

by **Frederick J. Reed, Chief Engineer, Airconditioning and Refrigeration Institute**

► As every architect knows all too painfully, the cost and complexity of mechanical items in the building contract have risen steadily over the past decades. As technology expands, there is corresponding increase in the responsibility of the architect. The hard fact, as proven by the many negligence cases for which he has been held contractually responsible, is that the architect must rely more and more upon other design professionals and the industries they serve for assurance that the proper mechanical equipment or process is chosen for the project and that it will perform satisfactorily. This imposes, in turn, a heightened responsibility on the part of the engineer and the producer of the equipment.

Such a responsibility has been assumed by the Unitary Airconditioner section of the Airconditioning and Refrigeration Institute, whose members produce unitary (central) air-conditioning equipment. This responsibility has taken the form of a Unitary Certification Program, now supported by 51 manufacturers producing more than 90% of the unitary equipment of the industry. The program covers unitary equipment producing up to 135,000 BTUH. (12,000 BTUH equal one ton of cooling.) It demands that the manufacturer subscribing to the program rate his products in BTUH or equivalent tons rather than misleading "horsepower" or other terms which fail to indicate cooling capacity. Both self-contained units and "split" systems are covered by the program. It does not yet cover the heat pump and has no connection with window units.

What does this mean to the architect? The program offers two important elements of specification protection. First, any equipment bearing the ARI Seal of Certification assures him that the equipment is rated to produce the cooling capacity it claims and that figures on which capacity is based have been submitted to ARI. Further, it means that the participating producer's equipment is subject to random testing without warning by ARI. The Institute has in operation a specially-designed testing facility at the Electrical Testing Laboratories of New York City where stock units are continuously tested. Tests are rigorous and may take a week for a single piece of equipment.

Part of the performance test, for example, involves running the unit with the inside coil subjected to an indoor temperature of 95° F. and the condensor coil subjected to an outdoor air temperature of 115° F. After running under these punishing conditions for two hours, the unit is shut down to let the heat "soak in." It is then run again for an hour, during which it may "trip out" and start again only once. Should the unit fail to meet the performance test, the manufacturer must correct the deficiency, withdraw the unit from production, or withdraw from the program.

Participating manufacturers and the unit lines covered by the program are named in a directory which AIA members may receive without charge from ARI, whose address is 1346 Connecticut Avenue, NW, Washington, DC.

This program, in operation now for more than 18 months, has been extremely successful. Through the directory and the use of the seal itself on the equipment, it offers the architect a degree of specification protection heretofore unobtainable. This protection, in the view of the industry, will become even more important to the design professions as time goes on. Central equipment rated at or below 135,000 BTUH has, of course, wide use in the residential building market. But such units also are in use in many stores, small office buildings, churches, schools, and factories. In many building complexes, particularly those comprising a number of relatively small buildings—the campus or cluster-plan school is a case in point—such equipment will have an even greater use in the future. ◄

New Members, Producers Council, Inc

Airconditioning and Refrigeration Institute
1346 Connecticut Ave, N W
Washington, D. C.
George S. Jones, Jr, Managing Dir.
National Representative

American-Saint Gobain Corporation
Farmers Bank Building
Pittsburgh 22, Pennsylvania
R. K. Laurin, Asst to VP-Sales
National Representative

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Milwaukee 1, Wisconsin
Charles H. Berenger, Adv. Mgr.
National Representative

Georgia Pacific Corporation
Equitable Building
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W. H. Hunt, Vice President
National Representative

Lemlar Manufacturing Company
715 W. Redondo Beach Boulevard
PO Box 352
Gardena, California
Lee Miller, President
National Representative

The Ruberoid Company
500 Fifth Avenue
New York 36, New York
F. K. Sweeney, VP-Sales
National Representative

Electric Heating Forum

Electric Heating Forum is a new feature of the July 60 issue of *Electrical Construction and Maintenance*, a monthly McGraw-Hill publication. The editors say that it "is not limited as to its scope of subject matter." Cost per reprint: 20¢, quantity discounts. Readers are invited to express their opinions; relate their own experience data to the material presented; or submit new ideas, research data, or case studies on any aspect of electric space heating. Please address correspondence to:

Electric Heating Forum
Electrical Construction and Maintenance
330 West 42nd Street
New York 36, New York

American Standard A39.1-1959, Safety Code for Window Cleaning.

American Standards Assn., 10 E. 40th St., New York 16, N.Y. 8½" x 11", 14 pp, $1.00

A revision of the 1933 Code which brings the requirements and specifications for belts, anchors and other safety equipment in harmony with improvements made during the past twenty-five years.

American Standard Cast-Bronze Solder-Joint Drainage Fittings, ASA B 16.23—1960

The American Society of Mechanical Engineers, 29 W. 39th St., New York 18, N.Y. 8½" x 11", 30 pp, $2.00

Illustrates and describes cast-bronze solder-joint fittings for drainage and vent systems using the solder-joint method of connection. Fittings are provided with stops so that the ends of tube, when made up, meet the stops and form practically smooth passageways.

Warm-Air Furnace-Burner Units Equipped With Pressure-Atomizing or Rotary-Type Oil Burners—Commercial Standard CS195-60 (Supersedes CS195-57).

Office of Technical Services, Commodity Standards Div., US Dept. of Commerce. 5¾" x 9", 30 pp, 15¢*

Applies to warm-air furnaces equipped with pressure-atomizing or rotary-type oil units. Covers both gravity and forced-air furnaces, but does not apply to floor furnaces or to any furnaces furnished without burners. Also, covers only furnaces having a specified input rating of 560,000 BTUH or less. It describes the test apparatus and procedures for determining the standard furnace rating of warm-air furnace-burner units at an air temperature rise of 85°F., and optional furnace ratings at other specified values of air temperature rise through the furnace.

Plastic Drain and Sewer Pipe and Fittings—Commercial Standard CS228-60. Effective January 4, 1960.

Office of Technical Services, Dept. of Commerce. 6" x 9", 12 pp, 10¢*

Provides a nationally recognized specification for the guidance of producers, distributors, testing laboratories, and users of styrene-rubber plastic drain and sewer pipe and fittings; and to maintain public confidence in the quality of the products of this industry.

Pipes, Ducts, and Fittings for Warm-Air Heating and Air Conditioning Systems—Simplified Practice Recommendation R207-60. Effective February 15, 1960.

Office of Technical Services, US Dept. of Commerce. 7¾" x 10¼", 24 pp, 15¢.*

Establishes a standard of practice in production, distribution, and use of the kinds and sizes of prefabricated pipes, ducts, and fittings for warm-air heating and air conditioning systems as listed.

NFPA Standards & Codes

1960 Editions of the following NFPA Standards and Codes are available from National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass. 4¾" x 7¼".

NFPA number	
11	Standard for Foam Extinguishing Systems. 60¢
13	Standard for the Installation of Sprinkler Systems. $1.25
19	Specifications for Motor Fire Apparatus. 75¢
20	Standard for the Installation of Centrifugal Fire Pumps. $1.00
33	Standard for Spray Finishing Using Flammable Materials. 50¢
51	Standard for the Installation and Operation of Gas Systems for Welding and Cutting. 50¢
56	Code for Use of Flammable Anesthetics (Safe Practice for Hospital Operating Rooms). 50¢
58	Standard for the Storage and Handling of Liquefied Petroleum Gases. 50¢
71	Standard for the Installation, Maintenance and Use of Central Station Signaling Systems. 50¢
72	Proprietary Auxiliary and Local Protective Signaling Systems for Watchman, Fire Alarm and Supervisory Service. 50¢
72C	Remote Station Protective Signaling Systems. 50¢
73	Municipal Fire Alarm Systems. 50¢
74M	Home Fire Alarm Systems. 35¢
80A	Suggested Practice for Protection Against Fire Exposure of Openings in Fire Resistive Walls. 35¢
82 82A	Standard for Incinerators, Rubbish Handling. 50¢
90A	Air Conditioning and Ventilating Systems of Other than Residence Type. 50¢
90B	Residence Type Warm Air Heating and Air Conditioning Systems. 50¢
196	Standard for Fire Hose. 40¢
232	Protection of Records. $1.00
251	Standard Methods of Fire Tests for Building Construction and Materials. 50¢
302	Fire Protection Standards for Motor Craft. 50¢
303	Fire Protection of Marinas & Boatyards. 50¢
325	Fire-Hazard Properties of Flammable Liquids, Gases and Volatile Solids. $1.50
409	Standard on Aircraft Hangars. 75¢
501A	Standard for Fire Protection in Trailer Courts. 40¢
802	Recommended Fire Protection Practice for Nuclear Reactors. 75¢

*Available from Superintendent of Documents, US Government Printing Office, Washington 25, D. C. (Stamps not accepted.)

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1 J	2 C	3 F	4 M	5 P	6 Q	7 A	8 I	■	9 I	10 G	11 Q	12 O	13 F	
14 C	15 B	■	16 D	17 J	18 O	■	19 P	20 H	21 K	■	22 I	23 B	24 D	
25 E	26 N	27 A	28 R	29 Q	30 K	■	31 I	32 P	33 D	34 E	35 H	36 N	■	
37 C	■	38 F	39 I	40 N	41 M	42 J	43 G	44 R	45 K	46 C	■	47 G	48 D	
49 M	■	50 K	51 J	52 H	53 R	54 C	55 O	56 F	57 D	58 J	■	59 C	60 G	
61 B	■	62 C	63 O	64 A	65 J	66 G	■	67 H	68 K	69 A	70 M	■	71 K	
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84 A	85 M	86 E	■	87 B	88 F	89 M	90 E	91 K	92 N	■	93 H	94 O	95 L	
96 Q	97 A	98 C	■	99 A	100 O	101 R	■	102 L	103 H	104 J	105 P	106 E	107 A	
■	108 L	109 C	■	110 B	111 O	112 L	■	113 I	114 L	115 B	116 H	117 P	■	

Archcrostic V

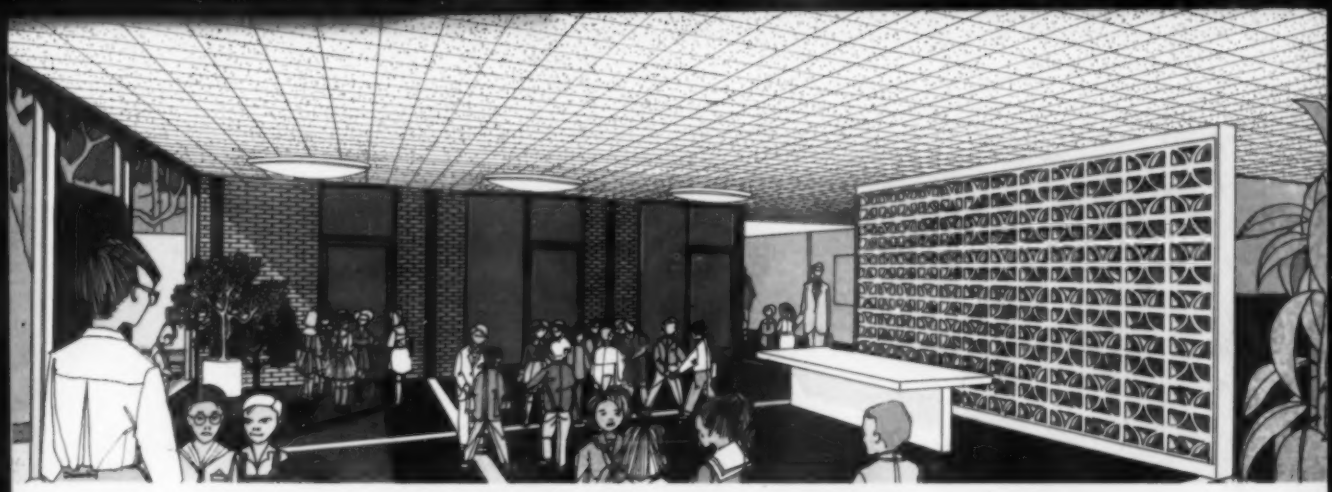
John J. Klaber, AIA, Huntington, L. I., N. Y.

Definitions	Words
A Famous Roman architect	64 78 99 107 7 69 27 84 97
B Ornamental ridge tile ending	87 61 110 15 74 115 23
C Leader in the English Romanesque period (2 words)	14 2 73 46 37 62 59 81 54 98 109
D A veranda	24 16 33 57 48
E Restriction of property inheritance	106 80 86 90 34 25
F A pointed arch	88 13 3 38 56 77
G What we do to prepare plans for printing	47 66 60 43 10
H Choir of a church	52 67 20 35 93 103 116
I Arranged systematically	79 8 9 22 39 113 31
J Cathedral or monastery church	1 42 17 104 58 65 51
K What building mechanics look forward to	71 50 21 30 68 91 45
L A type of moulding	112 114 108 102 95
M Source of valuable technical information	4 89 49 70 41 85
N Portrait statues or paintings	40 83 26 36 72 92
O Ancient invention, much used in building (2 words)	55 100 63 111 94 18 82 12
P What the *Journa* must be, every month	5 105 117 32 75 19
Q A type of moulding	96 11 6 29
R Recess in a wall	28 44 76 53 101

Instructions

To solve this puzzle you must guess eighteen words, the definitions of which are given in the column headed Definitions. Alongside each definition there is a row of dashes — one for each letter in the required word. When you have guessed a word, write it on the dashes, and also write each letter in the correspondingly numbered square in the puzzle diagram. When all the words are filled, the initial letters in the "Words" column spell the name of the author and the title of the work from which the quotation was taken. Black squares indicate ends of words; if there is no black square at the right of the diagram, the word carries over to the next line.

Solution next month



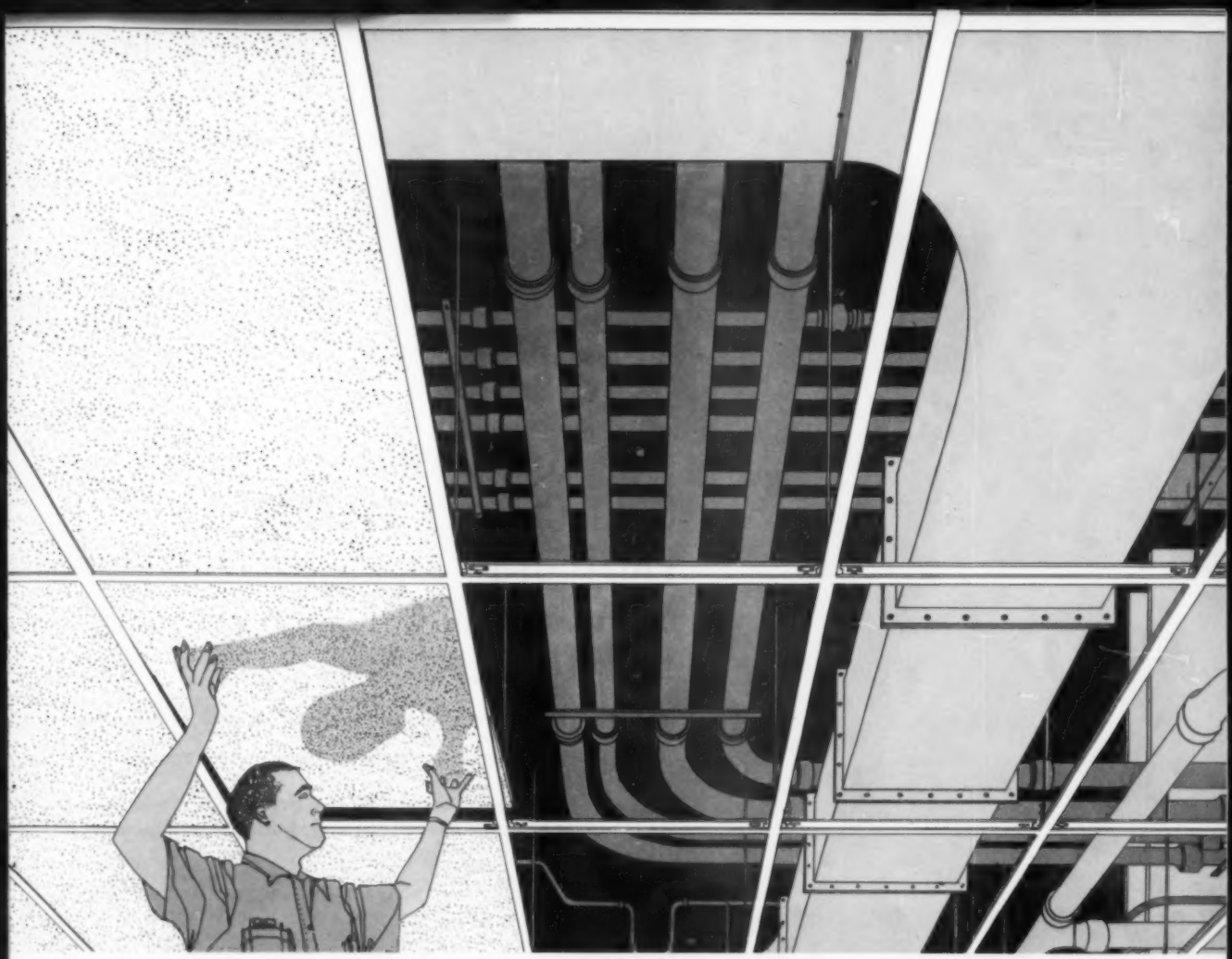
Centennial High School, Circle Pines, Minn. Architects: Ames-Crommett & Associates

Two years ago, Armstrong introduced the first time-design-rated acoustical ceiling tile—Acoustical Fire Guard. Today . . .

ARMSTRONG ANNOUNCES ANOTHER SIGNIFICANT DEVELOPMENT IN FIRE-RETARDANT CEILINGS



THE FIRST
AND ONLY
TIME-DESIGN-RATED
ACOUSTICAL LAY-IN
CEILING



Now there is no more economical way to get rated fire protection plus excellent acoustical qualities. It also offers the advantages of complete accessibility, dry installation, insurance savings, and beauty.

Once or twice in every decade, a company will develop a really new building product—a product that completely overhauls the industry's thinking. Two years ago, Armstrong did it with Acoustical Fire Guard tile. Since then, millions of feet of this tile have been installed.

Acoustical Fire Guard meets the nation's strictest fire codes and eliminates the need for costly intermediate protection between a suspended acoustical ceiling and steel structural members. It has saved builders up to six weeks' construction time and up to 30 cents per square foot construction cost.

The new Acoustical Fire Guard lay-in ceiling system goes a giant step further. It combines the advantages of the exposed grid suspension system (economy, fast installation, complete accessibility) with those of a time-design-rated ceiling.

THIS U.L.-APPROVED GRID CEILING SYSTEM PROTECTS STRUCTURAL STEEL FOR THREE HOURS

Underwriters' Laboratories, Inc., has given this revolutionary ceiling an official beam protection rating of three hours.

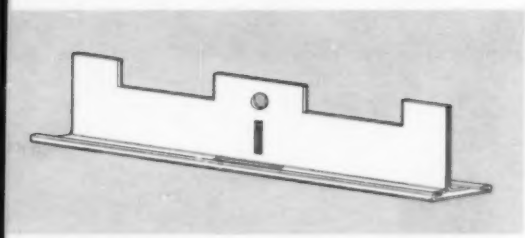
The unique composition of the Fire Guard lay-in unit enables it to maintain spanning strength, even when exposed to flames and 2000-degree heat for many hours. Ordinary acoustical ceiling boards virtually disintegrate under such exposure.

And the grid system is unique, too. Standard grid systems would buckle quickly in the heat of the test chamber. This buckling would drop the lay-in units, thus exposing the structural members to heat and flame. There is no buckling with the Acoustical Fire Guard exposed grid system. The reason: the expandable joints. (See diagrams.) Both the metal members and the lay-in units carry the U.L. Label.

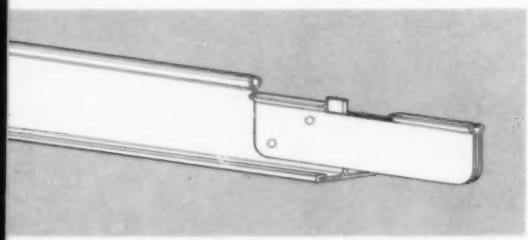
Like the familiar Acoustical Fire Guard tile, the new lay-in system protects the structural components of a building. It combines with a floor structure to help check the spread of fire by resisting the dangerous transmission of heat from one area to another.

In official U.L. tests, the new system—utilizing nominal 24″ x 48″ x ⅝″ lay-in units—earned a beam protection rating of three hours. Assemblies using bar joist and slab as well as beam and steel floor construction earned official U.L. floor-ceiling ratings of two hours.

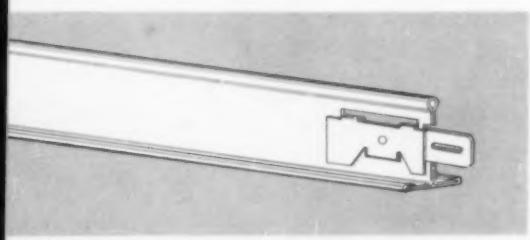
And in either the new lay-in system or in tiles, Acoustical Fire Guard may be used with a variety of construction forms to meet building code or insurance rating requirements. Variations from tested assemblies which maintain or improve the fire-retardant rating have been accepted by local code officials, building inspectors, and rating agencies.



Hanger splice

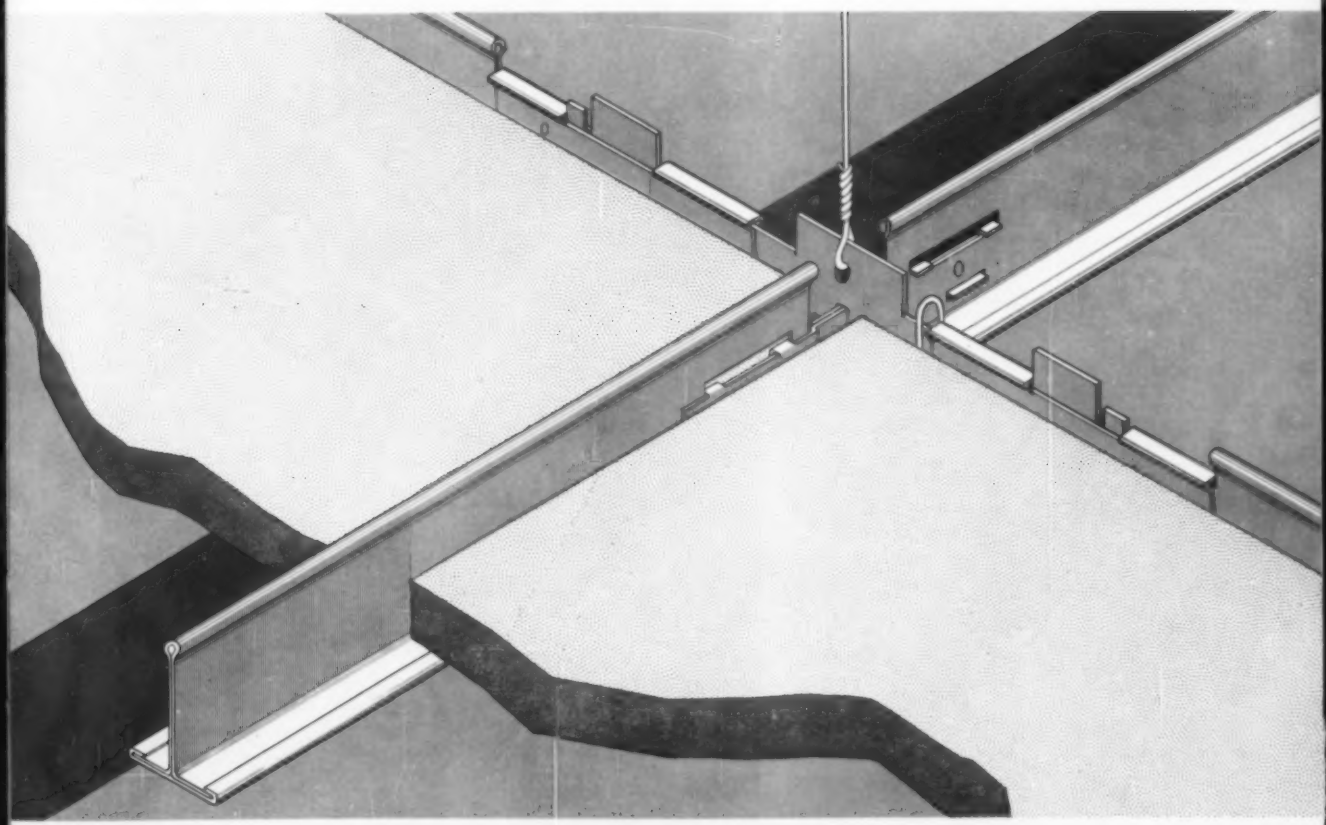


Main tee



Cross tee

Acoustical Fire Guard lay-in units can withstand 2000-degree heat for prolonged periods. The suspension system is designed to permit expansion of metal runners when exposed to intense heat and flame.



SAVE MONEY AND CONSTRUCTION TIME

Acoustical Fire Guard lay-in system reduces labor and material costs, insurance premiums, maintenance charges—and it speeds both new and remodeling projects.

Armstrong Acoustical Fire Guard lay-in ceilings are more economical than other finished ceilings that will provide two- or three-hour protection for structural steel. In most cases, they will cost even less than ordinary plaster ceilings on metal lath.

Not only is the cost of the units and the metal members low, but labor costs are lower because the large units are easy to handle and install.

Savings do not end with installation. Maintenance is minimized. Insurance companies recognize rated fire protection with lower premiums on a building and its contents.
Because there is no messy wet operation which requires extensive cleanup, this product is ideal for remodeling jobs. Installation can be done during or after office or school hours. Stores continue to earn revenue during the installation.

Acoustical Fire Guard helps builders to meet deadlines in another way. Other trades (such as carpenters, flooring contractors, and painters) can be on the job at the same time as the acoustical contractor. There is no waiting for wet work to dry. This alone can save weeks. When combined with the other time-saving advantages of Armstrong Acoustical Fire Guard lay-in units, the saving can amount to *two months or more.*

Excellent for remodeling jobs



Large units go in fast and dry

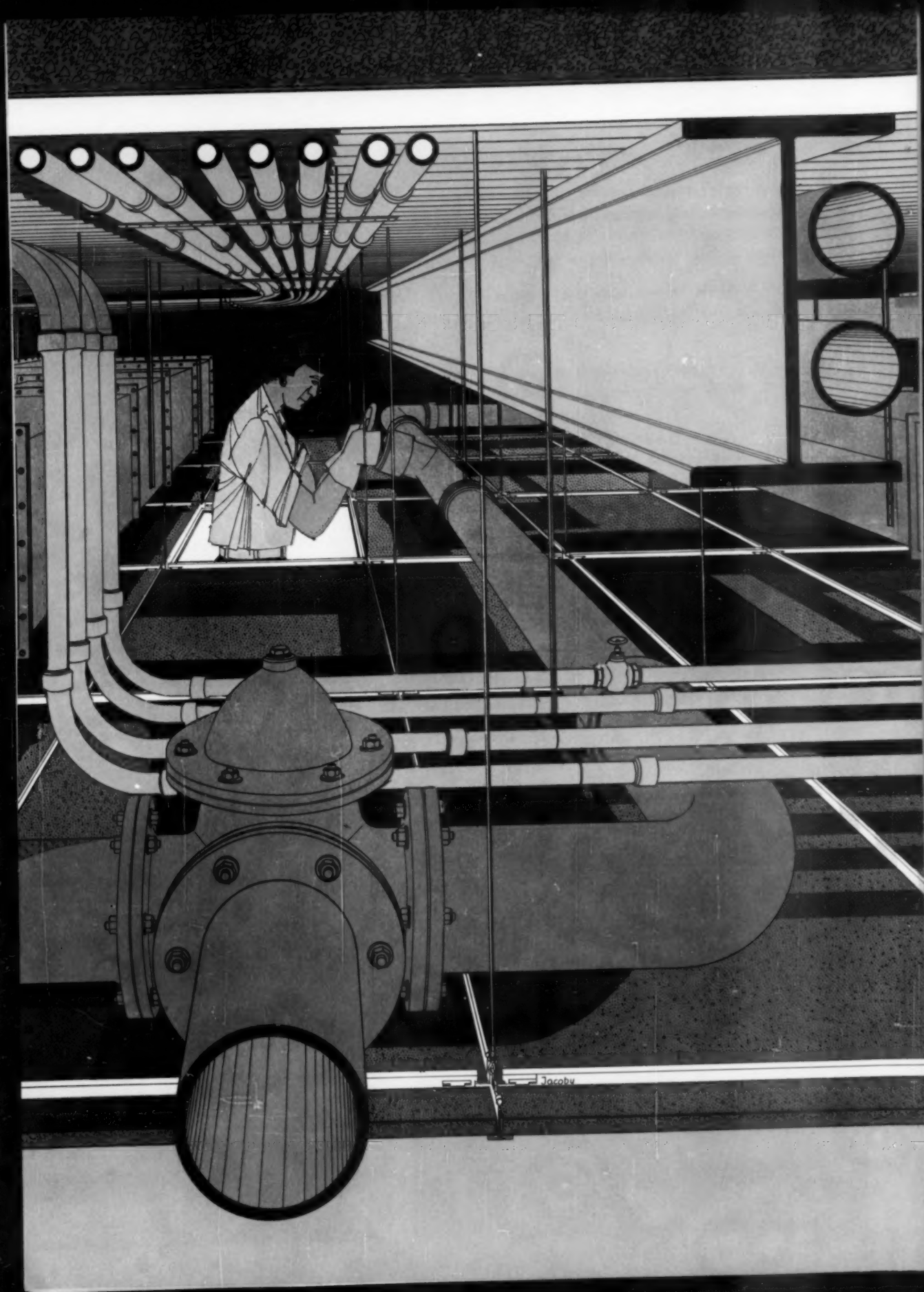


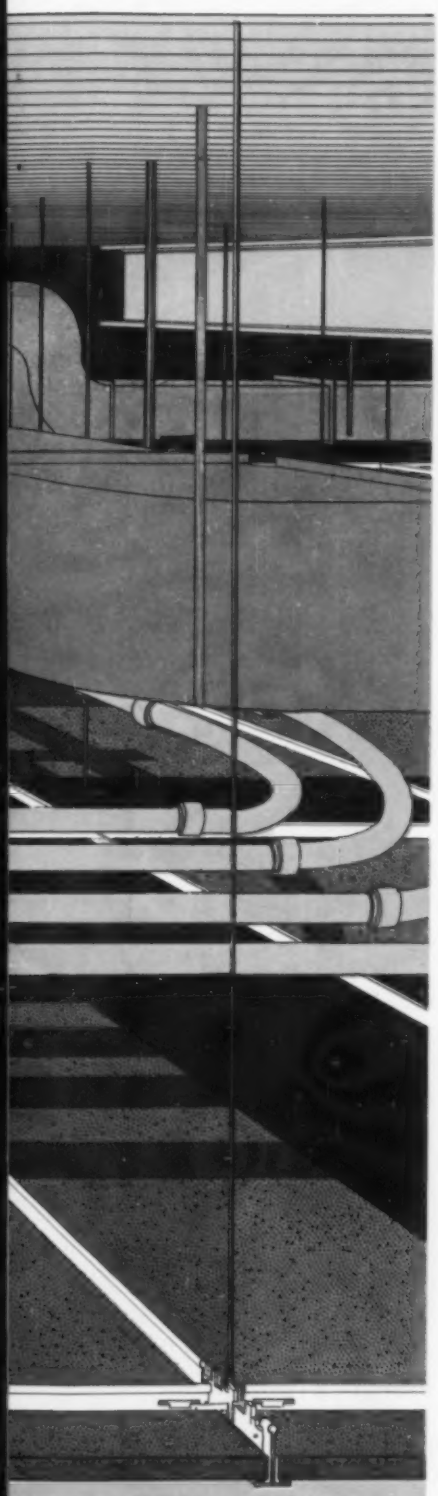
Other trades can be on the job



Protection cuts insurance rates




Jacoby



THE NEW ACOUSTICAL FIRE GUARD SYSTEM ALLOWS COMPLETE ACCESSIBILITY

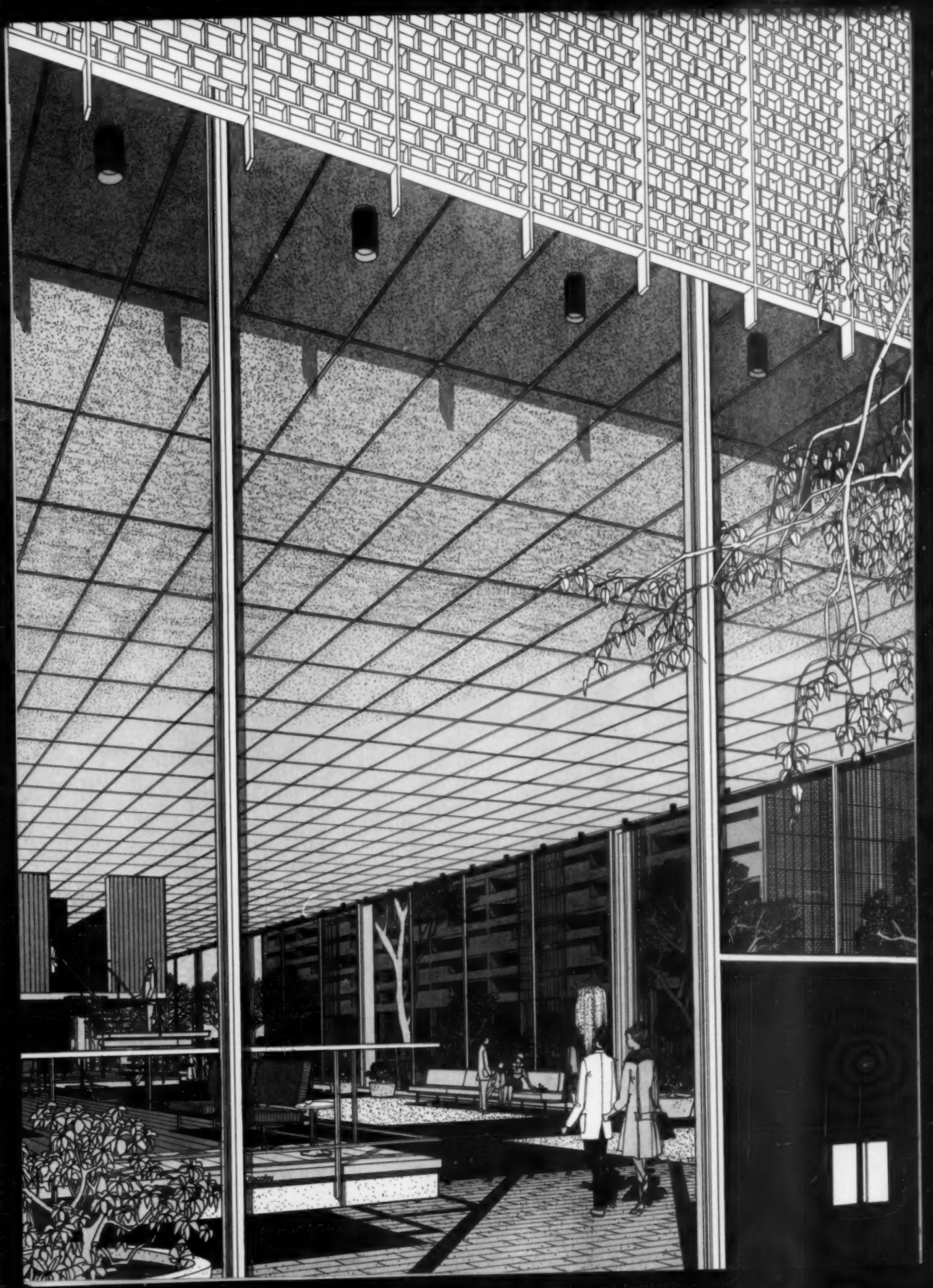
The Acoustical Fire Guard grid supports the panels on all four edges. The units can be lifted out for complete access to any part of the plenum chamber.

Because of the maze of pipes, ducts, and electrical equipment installed above the suspended ceilings of today's buildings, accessibility has become an important consideration in specifications. The only way to gain access through an old-fashioned plaster ceiling was by expensive access doors or by breaking through the ceiling when an emergency arose.

The Acoustical Fire Guard exposed grid system provides 100 per cent accessibility to the areas above the ceiling. Each panel is supported on all four edges. Every board can be lifted out in seconds.

The new Acoustical Fire Guard lay-in units are available in two nominal sizes: 24" x 24" and 24" x 48".

Lift out any units to afford immediate accessibility to the plenum chamber



BRINGS BEAUTY TO A BUILDING'S INTERIOR

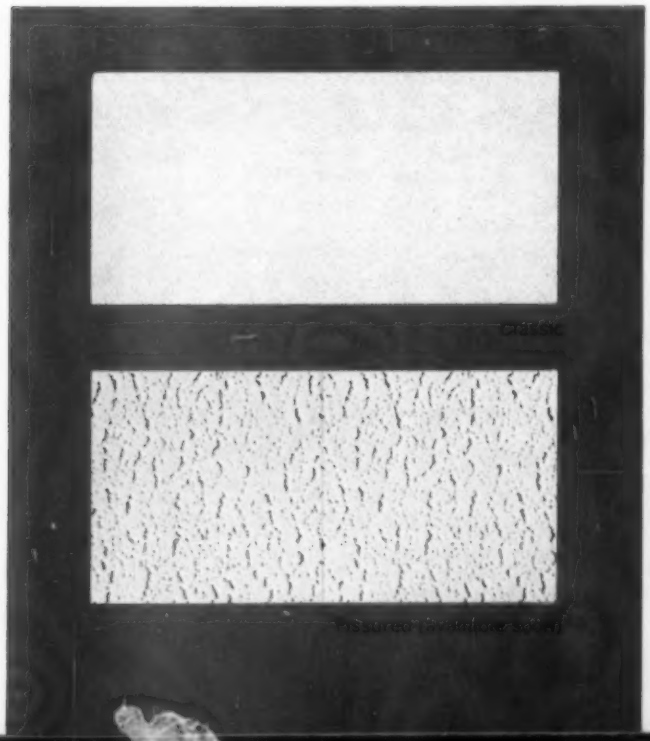
The room on the left has an Acoustical Fire Guard lay-in ceiling in the Classic design. The lace-like pattern of tiny perforations gives a smooth, free-flowing effect to the ceiling. Classic has been the most copied design in the history of the ceiling industry—ever since its introduction in 1958 by Armstrong.

Acoustical Fire Guard lay-in units will soon be available in the Fissured design. The attractive fissured surface is a traditional choice wherever ceiling appearance is a primary factor. The fissures resemble the look of travertine marble.

In addition to being an efficient sound absorber, Acoustical Fire Guard—because of its density and composition—can be used with ceiling-height partitions to minimize room-to-room sound transmission problems.

And Acoustical Fire Guard's white surface reflects light evenly, without glare. This ceiling has a light reflectance of "a" (over 75%). The exposed surface of the metal suspension members is available in two finishes—painted white, to match the ceiling boards, and anodized aluminum. Either finish contributes to a modern look for an interior.

Since the Classic and Fissured designs are identical in both the lay-in units and the tile, they can be combined in different areas of the same building.



Architectural designs and renderings by Helmut Jacoby

SPECIFICATIONS FOR Armstrong ACOUSTICAL FIRE GUARD CEILINGS

JOB CONDITIONS

Acoustical materials shall be installed under conditions as outlined in the current bulletin of the Acoustical Materials Association.

SPECIAL CONDITIONS

Armstrong Acoustical Fire Guard shall be installed only by an approved Armstrong acoustical contractor.

MATERIALS

a. Acoustical ceilings shall provide (one, two, three) hours' protection for structural steel as rated by Underwriters' Laboratories, Inc.

b. Acoustical contractor shall submit, as a part of his bid proposal, written substantiation of the rating from Underwriters' Laboratories, Inc.

c. Acoustical lay-in units where specified shall be nominal (24″ x 48″, 24″ x 24″) x ⅝″ in size. Acoustical tile where specified shall be 12″ x 12″ x ⅝″ in size with interlocking and self-leveling tongue-and-groove edges on four sides. Acoustical units shall have a factory-applied washable white finish with a light reflectance of "a" (over 75%). Acoustical units shall be provided in the following surface detail:

Armstrong Fissured Acoustical Fire Guard—Federal Specifications SS-A-118b, Type III, Class A (Incombustible)—Carrying Underwriters' Laboratories, Inc., Label for Fire-Retardant Classification.

Armstrong Classic Acoustical Fire Guard—Federal Specifications SS-A-118b, Type IIB, Class A (Incombustible)—Carrying Underwriters' Laboratories, Inc., Label for Fire-Retardant Classification.

d. When acoustical lay-in units are specified, suspension system shall be Armstrong Acoustical Fire Guard exposed grid system as shown in the Underwriters' Laboratories listing of the time-design-rated ceilings. Suspension members shall be finished in (white, anodized aluminum) and shall be of the proper dimension to support the size of Fire Guard lay-in units specified. Suspension system shall carry U.L. Inc., Label for Fire Retardant Classification. Where acoustical tiles are specified, suspension system shall be concealed zee system.

INSTALLATION

a. Installation of suspension system. The acoustical contractor shall furnish and install (Armstrong Acoustical Fire Guard exposed grid system, concealed zee system). The system shall be installed in the pattern as shown on the drawings. The system shall be installed in strict accord with the manufacturer's recommendation and in such a manner as to achieve the specified fire-retardant time-design rating. System shall be installed to permit border units of greatest possible size.

b. Installation of acoustical material. The acoustical contractor shall install Armstrong Acoustical Fire Guard in the types, sizes, and surface designs specified above or in the drawings. The acoustical units shall be installed in strict accord with the manufacturer's recommendations and in such manner as to achieve the specified fire-retardant time-design rating.

NOTE:

Complete specifications and detailed working drawings are available from your Armstrong representative or your approved Armstrong acoustical contractor.

Armstrong District Offices

ATLANTA 8, GA.
727 West Peachtree St., N. E.

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200 First Avenue,
New England Industrial Center,
Needham Heights 94

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295 Fifth Avenue

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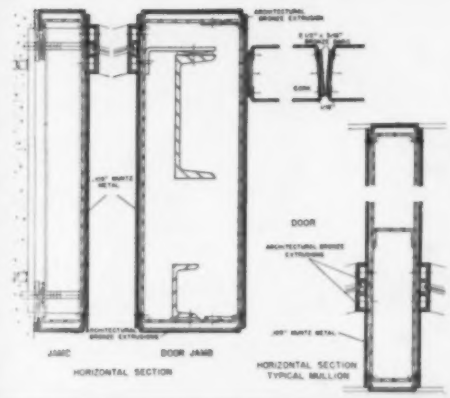
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Elected October 15, 1960

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INDOOR *Climate Control*

begins with the windows



WOOD WINDOW UNITS

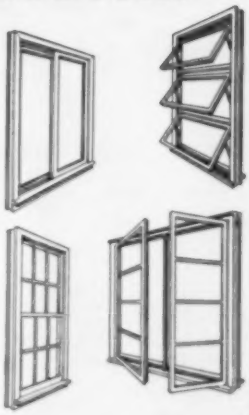
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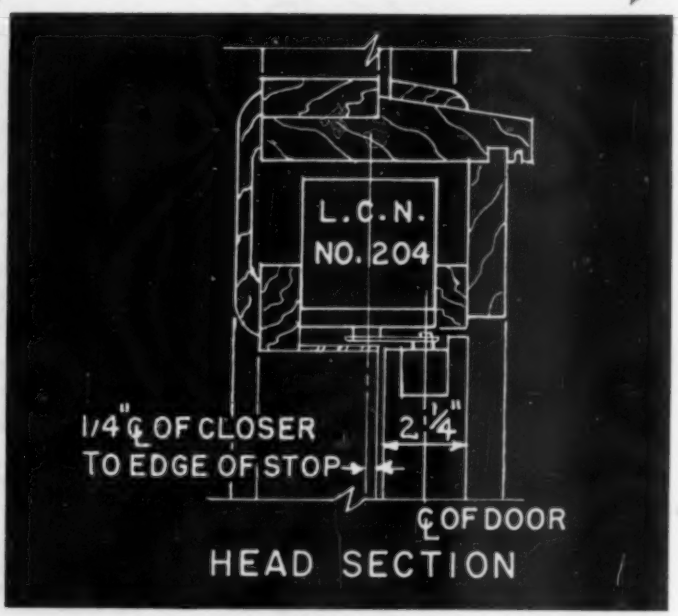
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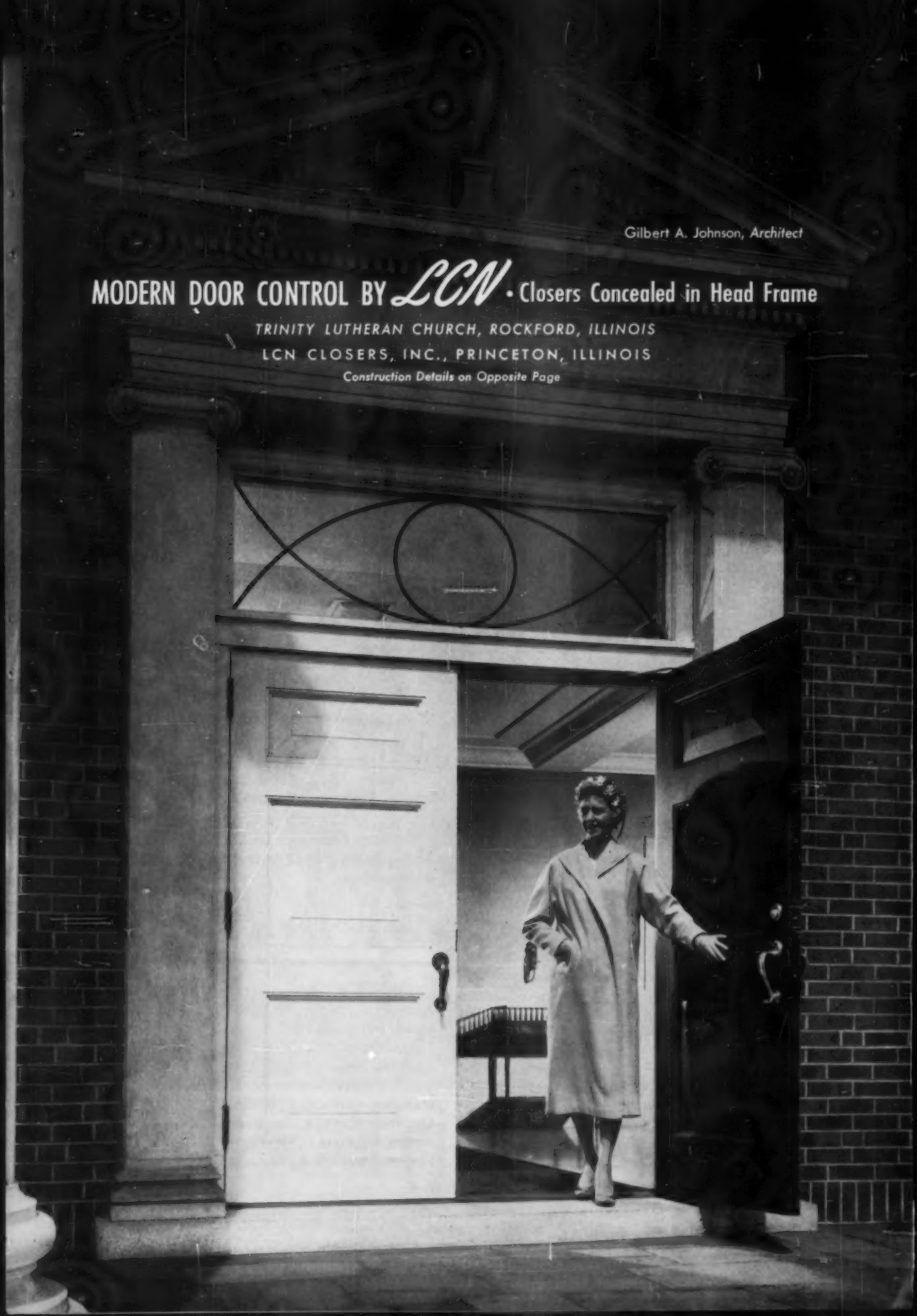
CONSTRUCTION DETAILS
for LCN Overhead Concealed Door Closer Shown on Opposite Page

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Construction Details on Opposite Page



CALENDAR

December 8-12: Meeting of Presidents of Societies Related to Homebuilding, Nassau

December 12: AIA-EJC Liaison Committee, the Octagon, Washington, DC

December 12-15: AHA Institute on Hospital Design and Construction, Washington, DC

January 6-7: Meeting of Chairmen of AIA National Committees, the Octagon, Washington, DC

January 9-16: Meeting of the AIA Board of Directors, the Octagon, Washington, DC

January 18-20: Honor Awards Jury, the Octagon, Washington, DC

January 27: Closing date for receipt of applications for Homes for Better Living Awards, at the Octagon, Washington, DC

January-February: The Roosevelt Memorial Competition Entries, Octagon Gallery, Washington, DC

February 3-13: Jury of Fellows, the Octagon, Washington, DC

March 1-2: Reynolds Award Jury, the Octagon, Washington, DC

April 22-29: Historic Garden Week in Virginia

April 24-28: AIA Annual Convention, Philadelphia, Pa.

May 17-21: 54th Annual Assembly, Royal Architectural Institute of Canada, Chateau Frontenac Hotel, Quebec City

July 3-7: Sixth Congress of the International Union of Architects, London. (For full information write Secretary, Royal Institute of British Architects, 66 Portland Place, London W. 1, England)

AIA District and Regional Meetings

January 26-28: 47th Annual Meeting of the North Carolina Chapter, Jack Tar Hotel, Durham, NC

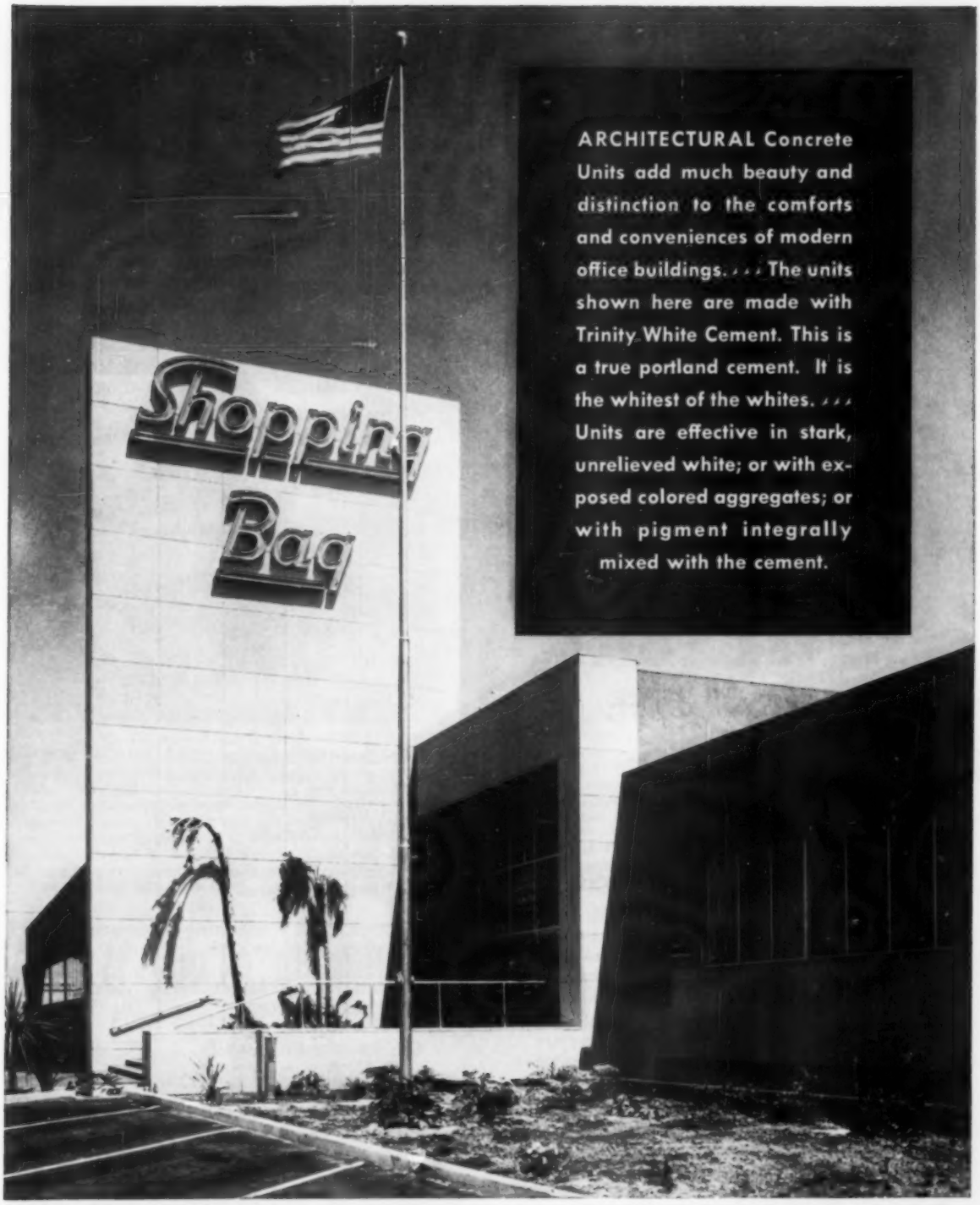
February 10-11: Great Lakes Regional Conference, Lexington, Kentucky

February 14: Boston Society of Architects and Massachusetts State Association of Architects, Boston, Mass.

NECROLOGY

According to notices received at the Octagon between September 20, 1960 and October 19, 1960.

ADAMS, RICHARD J., Montgomery, Ala.
COTTINGHAM, WORTH F., JR, Austin, Texas
DEBUYS, RATHBONE, New Orleans, La.
DEL GAUDIO, MATTHEW W., FAIA, New York, NY
DE ZELLER, GEORGE F., New York, NY
FEEMSTER, JOHN M., Tupelo, Miss.
HOWE, WALLIS E., FAIA, Bristol, R.I.
JAGOW, PAUL F., FAIA, Hempstead, NY
KNOEBEL, WILBERT G., St. Louis, Mo.
MANN, FREDERICK M., FAIA, Healdsburg, Calif.
MASUCCI, NICHOLAS J., Rochester, NY
MULVIN, THOMAS B., San Rafael, Calif.
PARISH, WILLIAM L., Davenport, Iowa
PARSONS, WALTER E., Baltimore, Md.



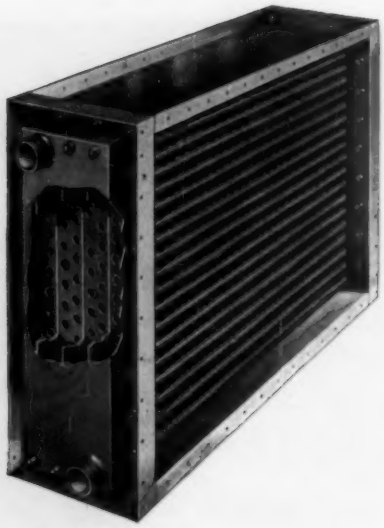
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PHILIP MORRIS WAREHOUSE, RICHMOND, VIRGINIA: Architect H. C. Baskerville states as the reason for choosing prestressed concrete: "After comparison of a number of framing systems, prestressed proved to be the most economical." Architects & Consulting Engineers: Baskervill & Son, Hankins & Anderson, Richmond, Virginia; Architect Consultant to the Owner: Ulrich Franzen, A.I.A., New York, N. Y.; Prestressed Concrete Fabricator: **CONCRETE STRUCTURES, INC., Richmond, Virginia.**



MAY COMPANY SHOPPING CENTER, WEST COVINA: Rockwin Prestressed Concrete Corporation, states, among other reasons for the choice of this method for this $12,000,000 development: ". . . long spans with minimum intermediate columns permitting maximum unobstructed areas . . . low cost and elimination of maintenance." Architect Engineer: A. C. Martin & Associates, Los Angeles; Contractor: T-S Construction Engineers, Inc., Los Angeles; Prestressed Concrete Manufacturer: **ROCKWIN PRESTRESSED CONCRETE CORP., Santa Fe Springs, Calif.**



MAYFLOWER MOTEL, ATLANTIC CITY: Architect S. L. Malkind states: "In addition to being 25% cheaper than comparative materials, the happy union of prestressed concrete girders and floor beams and concrete columns provides a perfect foil for architectural decoration." This three-tiered motel was designed and built, from ground-breaking to opening, in five months. Architect: Samuel Lewis Malkind, New York, N. Y.; Consulting Engineer: Stresscon Associates, Newark, N. J.; Contractor: Ramat Construction Company, Spring Valley, N. Y.; Fabricator of prestressed elements: **ATLANTIC PRESTRESSED CONCRETE COMPANY, Subsidiary of Warner Company, Trenton, N. J.**

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Given here are some current examples of what is being done with prestressed concrete throughout the country. In each case you'll find at least one of the above listed benefits given as the reason for the choice of this method over all types of construction.

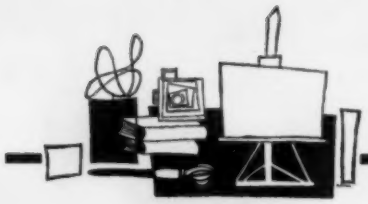
In 1948 Roebling placed on the market the first wire and strand made specifically for the purpose of prestressing concrete. Since that time, prestressed concrete construction justifiably has enjoyed an ever-increasing acceptance – for all types of structures – by architects, engineers, contractors, builders and *by the owners and managers who pay for them.*

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ALLIED ARTS

The Architect as a Prophet

by **Ada Louis Huxtable***

► A far-out show has just opened at the New York Museum of Modern Art that promises to be the season's shocker. For an institution that has led us to expect the spectacular, in a city as inured to sensation as New York, this isn't an easy accomplishment. But this exhibition—"Visionary Architecture"—contains all of the necessary elements. It has a dizzying idea, architectural schemes of stupefying scope and murky psychological undertones, and, as usual, a dramatic installation.

The theme of the show is staggering. "Visonary Architecture" is a round-up of this century's most extreme and esoteric proposals for remaking the world. (Architects have never been noted for false modesty.) It ranges from huge projects for whole cities that would make Buck Rogers blush, to a vast undertaking for remodeling the Alps—a kind of architectural improvement on God. This is the designer's dream-life, the landscape of the imagination, the unbuilt imagery of the conscious and subconscious mind.

If the visitor comes away reeling, he has plenty to think about. For like many of the Museum's shockers, the show also has impressive content. These schemes—none of which, needless to say, exists—are provocative in the most grand and giddy sense. First, they suggest unexplored technological and esthetic horizons. Second, they offer the broadest possible investigation by socio-architectural problems unhampered by society's present standards and solutions, which, in the case of our strangling cities and devastated countryside, are usually no solutions at all. And third, they present patterns of the future beyond any conventional contemporary concept.

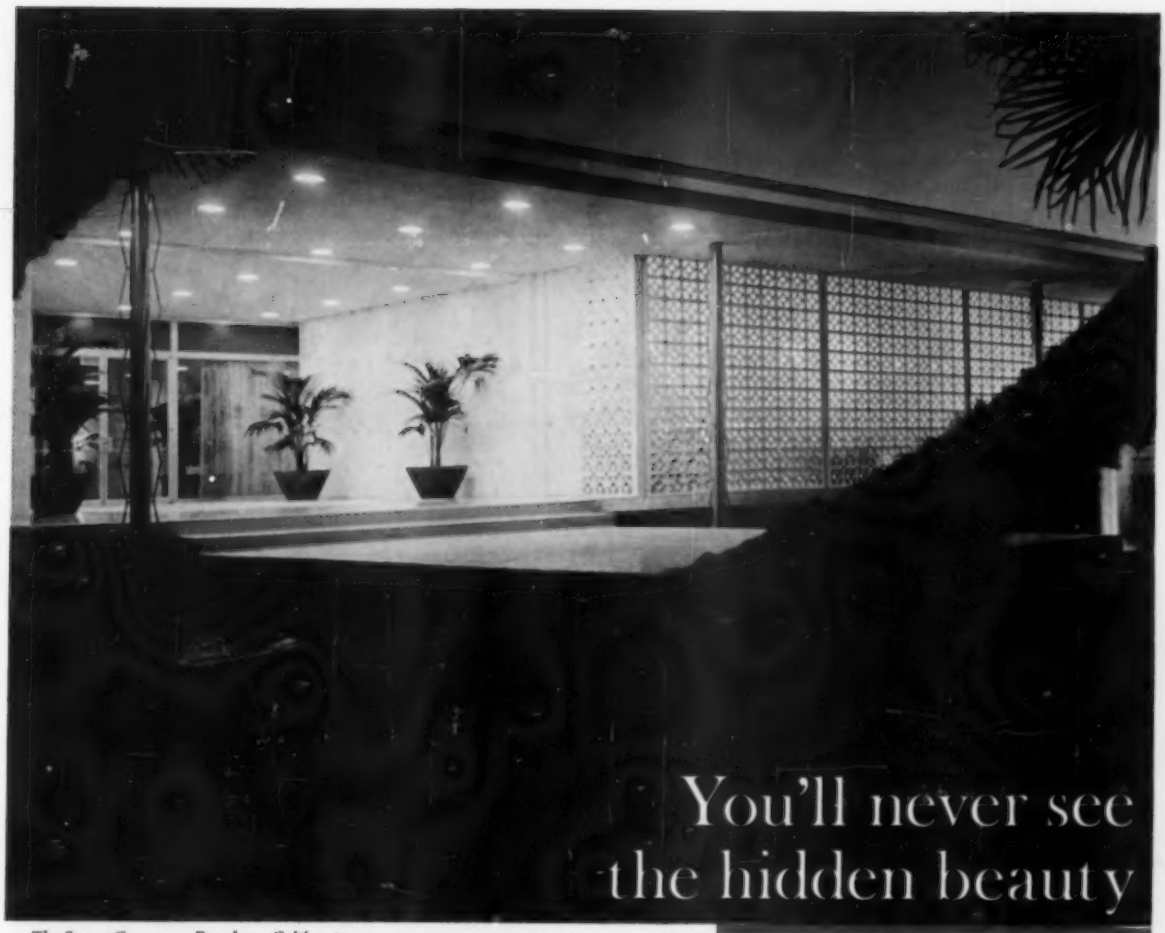
Some of the most respected architectural theorists and philosophers of the twentieth century are present—Le Corbusier, Frank Lloyd Wright, Lou Kahn, Frederick Kiesler, Buckminster Fuller. Moreover, the import of their dreams is inescapable. These men, all of whom are well-versed in practical construction, are here more concerned with the question of what we should build, than with how we should build it. In an age when technology has become an aim in itself and an excuse for everything, including style, they use it only as a means to an end. They fly dangerously high, but they dare to probe the deeper meanings of architectural expression.

At best, however, the answers are never more than abstract exercises. Their frequent pretentiousness and patent impracticability will annoy as much as titillate—an unbeatable combination at the box office. Proposals range from quasi—to absolute, to outrageous improbability. For Algiers, Le Corbusier has designed a nine-mile long, fourteen-story high building that doubles as a superhighway. With the help of life-size photographs, the spectator can enter Frederick Kiesler's world of "endless space," a kind of free-form Fun House, or gelatinous Cabinet of Dr Caligari. A dramatic series of enlargements present Bruno Taut's 1919 fantasy of classic megalomaniac grandeur—a vista of Alpine peaks cut, polished, faceted and trimmed to suit his own esthetic vision of the Universe.

The dreams of the young, as usual, are particularly dazzling. A "Bio-Technical City," designed by Paolo Soleri for the Arizona Mesa, proposes a series of monumental, plant-like structures connected by underground caverns for churches, museums, or "just beautiful spaces." Not the least of its extraordinary features is the architect's original drawing (not shown), an incredible 200-feet long. A young Japanese, Kiyonori Kikutake, has come up with one of the most intriguing concepts of all —a "Marine City" consisting of floating concrete cylinders containing dwellings with underwater views (the symbolism becomes increasingly terrifying) based on the not untenable theory that future population expansion may force communities into the sea. Significantly, a good number of these projects are concerned with the city.

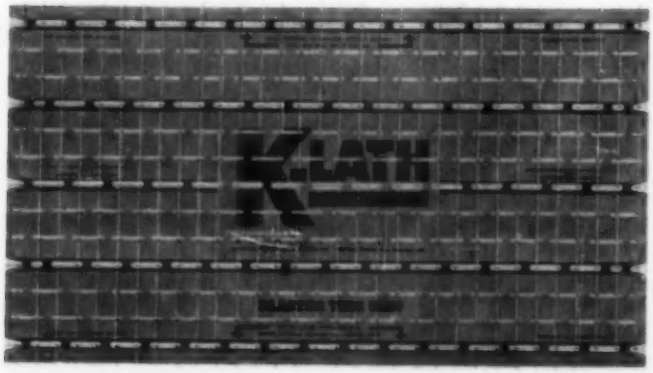
The effect of this strange, sometimes sinister show, containing equal parts of genius, arrogance and just plain foolishness, is as disturbing as it is stimulating. But if it provides a small, sharp jolt toward more profound architectural thinking, the museum can chalk up another success. ◄

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